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# PUBLIC EDUCATIONAL COSTS

REPORT OF AN INVESTIGATION

by the

COMMITTEE ON EDUCATION

of

THE CHICAGO ASSOCIATION OF COMMERCE

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PREFACE

The Chicago Association of Commerce is requested repeatedly to take position on questions of educational policy. Many of these requests relate to bills before the general assembly making appropriations for the financial support of educational institutions. Some relate to city ordinances relating to the financial support of the city schools. These increases are often directly, or indirectly competitive in the sense that the full allowance of all of the requests for financial support made at any one time would be beyond the possibilities. Some of the requests for endorsement relate to questions of policy apart from financial support.

The Chicago Association of Commerce is in the habit of referring all such matters to its Committee on Education with the request that it report on them to the Executive Committee. In order to make its reports on these matters when referred to it of more value this committee has conducted an investigation, the report of which is found in the following pages. The investigation has been financed by the Association. The committee consulted with President Harry Pratt Judson and Professor Charles H. Judd, director of the School of Education of the University of Chicago, and succeeded through them in securing Mr. N. B. Henry, a former teacher, high school principal and superintendent of schools in Missouri, and at present a research student doing post graduate work in the Department of Education of the University of Chicago.





## INTRODUCTION

Recent years have been a season of great unrest in educational matters, though in this respect education does not differ radically from other social activities.

There are those who question the advisability of proceeding further with the development of opportunities for higher education. On the other hand there are those who advocate an extension of this field to a greater degree than in the past, claiming that our new world relations demand for us a better trained leadership. These say that the supremacy of our industrial institutions demands the aid of more technically trained men such as laboratory workers, chemists, bacteriologists, and engineers. We have generally assumed that the universality of a common school education was a corner stone of our government. Yet from several widely separated quarters in recent years the advisability of discontinuing this policy of universal common school education has been questioned.

On the other hand it is claimed that we have never needed an educated proletariat more than now. A permanently successful democracy necessitates an intelligent follow-ship.

The advantages of education have always appealed to business men such as compose the membership of the Association of Commerce. Whether college graduates or not the majority of them have wanted their own sons to be college graduates.

When it came to common school education the great majority of the membership endeavor to employ men of some education wherever possible.

This opinion has been reflected in the willingness of business men to pay taxes to build schools, and to pay the expenses of the common schools, the colleges and the universities.

But now the business man is rather generally opposing additional taxation. This opposition is showing more disposition to crystalize into organized movements to resist increase of taxation than ever before. Some part of this disposition is extending to the field of support of education. This has gone as far at least as to make the business man desirous of knowing the present costs to government of education and also of learning the plans of the leaders of education in the common schools and of the higher schools of learning.

The two factors which are most influential in contributing to the steady increase in the cost of public education are the increasing numbers of eligible persons who are taking advantage of the opportunities afforded for educational training, especially on the higher levels, and the constantly widening range of activities being undertaken by the schools.

While the percentage of total population that was reported as of school age decreased from 29.6 in 1890, to 26.3 in 1918, the percentage of those of school age who were enrolled in public schools increased from 68.6 to 75.3. Although the elementary schools have reached the stage where they are increasing in enrollment at a rate approximately equal to that of growth in total population, they are carrying an increasing proportion of the enrolled pupils into the higher grades. Reports of the United States Bureau of Education show that the percentage of elementary school pupils who were in the eighth grade increased

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The two factors which are most influential in contributing to the steady increase in the cost of public education are the increasing numbers of eligible persons who are taking advantage of the opportunities afforded for educational training, especially on the higher levels, and the constantly widening range of activities being undertaken by the schools.

While the percentage of total population that was reported as of school age decreased from 23.8 in 1900 to 21.1 in 1918, the percentage of those of school age who were enrolled in public schools increased from 63.6 to 73.3. Although the elementary schools have reached the stage where they are beginning to enroll at a rate approximately equal to that of the total population, they are carrying an increasing proportion of the enrolled pupils into the higher grades. The United States Bureau of Education shows that the percentage of elementary school pupils who were in the eighth grade increased



from 6.4 in 1911, to 7.5 in 1918, and that the percentage of eighth grade pupils of one year enrolling in high school the following year increased from 46.3 in 1912, to 57.8 in 1918. Professor Thorndike is authority for the estimate that the high schools are now annually receiving about one-third of the total population group reaching high school age, as compared with a ratio of one to ten in 1890. Figure 1 indicates the relative rate of growth of population and of the principal types of publicly supported schools between 1890 and 1918.

The expansion of school curricula and other extensions of school activities are likewise proceeding rapidly. A recent report of the University of Minnesota shows the addition there of six distinct professional and technical departments since 1890. A study of high schools in the North central states by Professor Stout of Northwestern University, summarizes the subjects offered in 65 high schools in each of the two periods, 1906-11 and 1915-18. In the first period the schools studied were found to offer a total of 46 different courses, and the largest number offered by any one school was 6. In the second period the same number of high schools reported a total of 77 four year courses, 25% of the schools offering more than 6 subjects, and as many as 19 being offered by one school. A bulletin of the Chicago Board of Education issued in January, 1921, lists 26 different activities that have been added to the Chicago school system since the beginning of the school year 1909-10.

In consideration of facts such as these, and the related financial problems they imply, the present study was undertaken at the request of the Committee on Education of The Chicago Association of Commerce, and has been carried on in co-operation with this committee and a special committee of their number appointed to consider questions relating to the scope and policy of the investigation. Meetings of the committee and of the sub-committee have been held from time to time during the period of the investigation for the purpose of considering the character of the material to be included in the report and the significance of the findings of the study. The resolution and detailed program for the study as adopted by the committee in May, 1921, is here presented:

There is an annual increase in the proportion of the graduates of grammar school going into and going through high school.

There is an annual increase in the number of graduates of high schools going into the universities and colleges and technical schools.

The cost per unit of maintenance of elementary schools, high schools, universities, colleges and technical schools, is increasing annually.

The tendencies show no indication that they will not continue for years. Therefore, it is suggested that the Association of Commerce, through its Committee on Education, conduct an investigation to determine:

1. The division of public funds between support of elementary schools, high schools, normal schools, universities, colleges and technical schools.
2. The tendencies in such division as shown by the experiences of the past ten years.

The expansion of school curricula and other extensions of school activities are likewise proceeding rapidly. A recent report of the University of Minnesota shows the enrollment of six distinct professional and technical departments there in 1930. A study of high schools in the north central states by Professor Stout of Northwestern University, covering the years 1920-1930, shows that in the first period the number of schools offering a total of 48 different courses, and in the second period the same number of high schools reported a total of 57 four year courses, 85% of the schools offering more than 10 subjects, and as many as 19 being offered by one school. A bulletin of the Chicago Board of Education issued in January, 1931, lists 25 different activities that have been added to the Chicago school system since the beginning of the school year 1920-21.

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1. The division of public funds between support of elementary schools, high schools, normal schools, universities, colleges and technical schools.
2. The tendencies to such division of funds by the expenses of the past ten years.

3. The cost of education per capita in the different types of educational institutions.
4. How much of the expense is borne by the State and how much by the student.

- (a) In universities
- (b) Technical schools
- (c) Colleges
- (d) Normal schools
- (e) High schools
- (f) Elementary schools

Note - As to a, b, c, d, e, f, - the difference between fees paid by

- 1. Residents
- 2. Non-residents

5. Division of the cost of education as between the State and the student in Germany, England, France, and Canada.
6. Division in some states comparable with Illinois.
7. What limit is practicable in devoting a fixed proportion of income to:
- (a) Instruction in classical subjects; in technical subjects
  - (b) Property accounts
  - (c) Maintenance

6. The cost of education for students in the different types of educational institutions.

7. How much of the expense is borne by the state and how much by the student?

- (a) in universities
- (b) Technical schools
- (c) Colleges
- (d) Normal schools
- (e) High schools
- (f) Elementary schools

Note - As to 9, 10, 11, 12, 13, the difference between total paid by

- 1. Residents
- 2. Non-residents

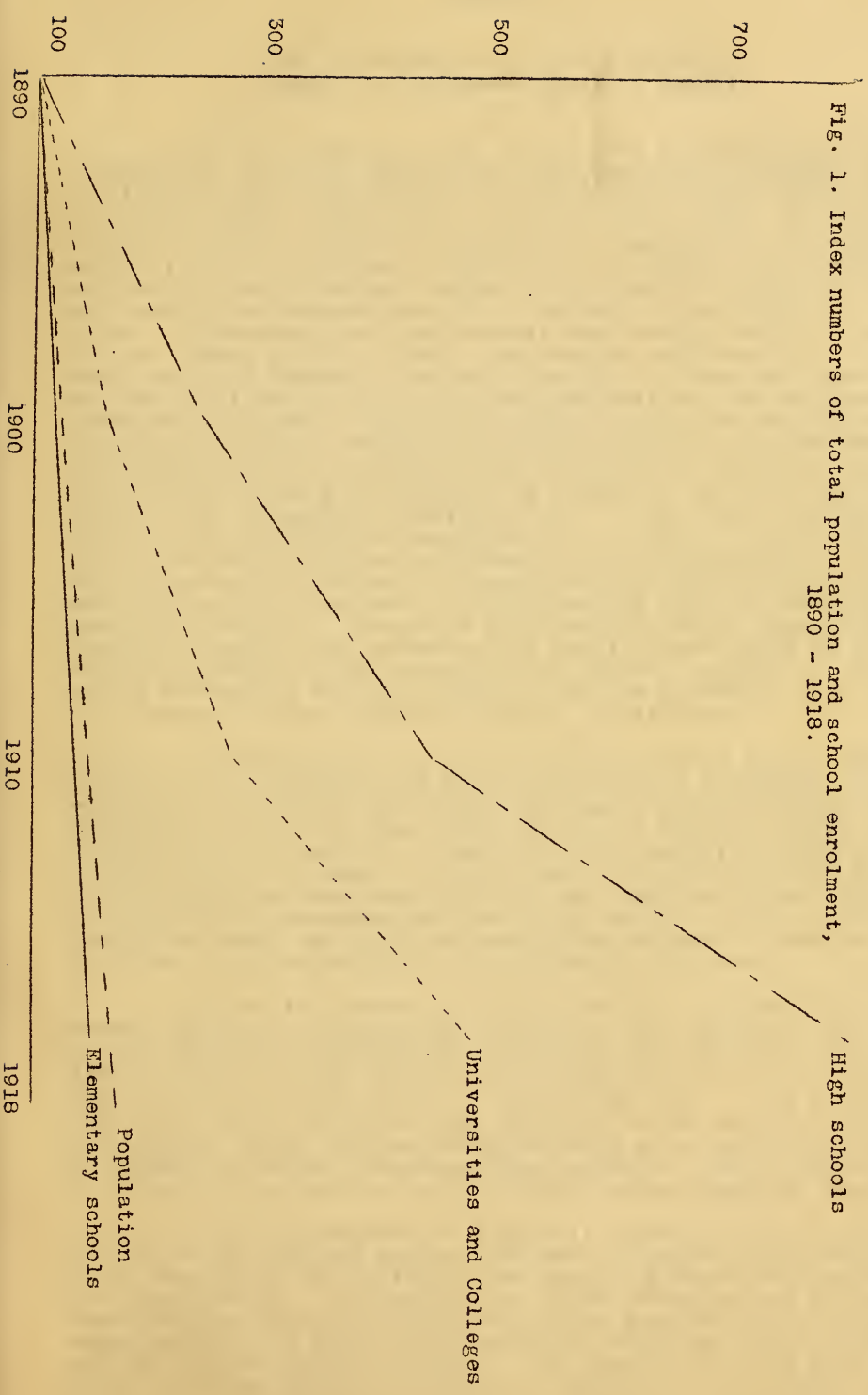
8. Division of the cost of education as between the state and the student in Germany, Austria, France, and Denmark.

9. Division in some states comparable with Illinois.

10. That part of the cost of education which is met by a fixed proportion of income for

- (a) Instruction in classical studies
- (b) Instruction in technical subjects
- (c) Primary schools
- (d) Maintenance

Fig. 1. Index numbers of total population and school enrolment,  
1890 - 1918.





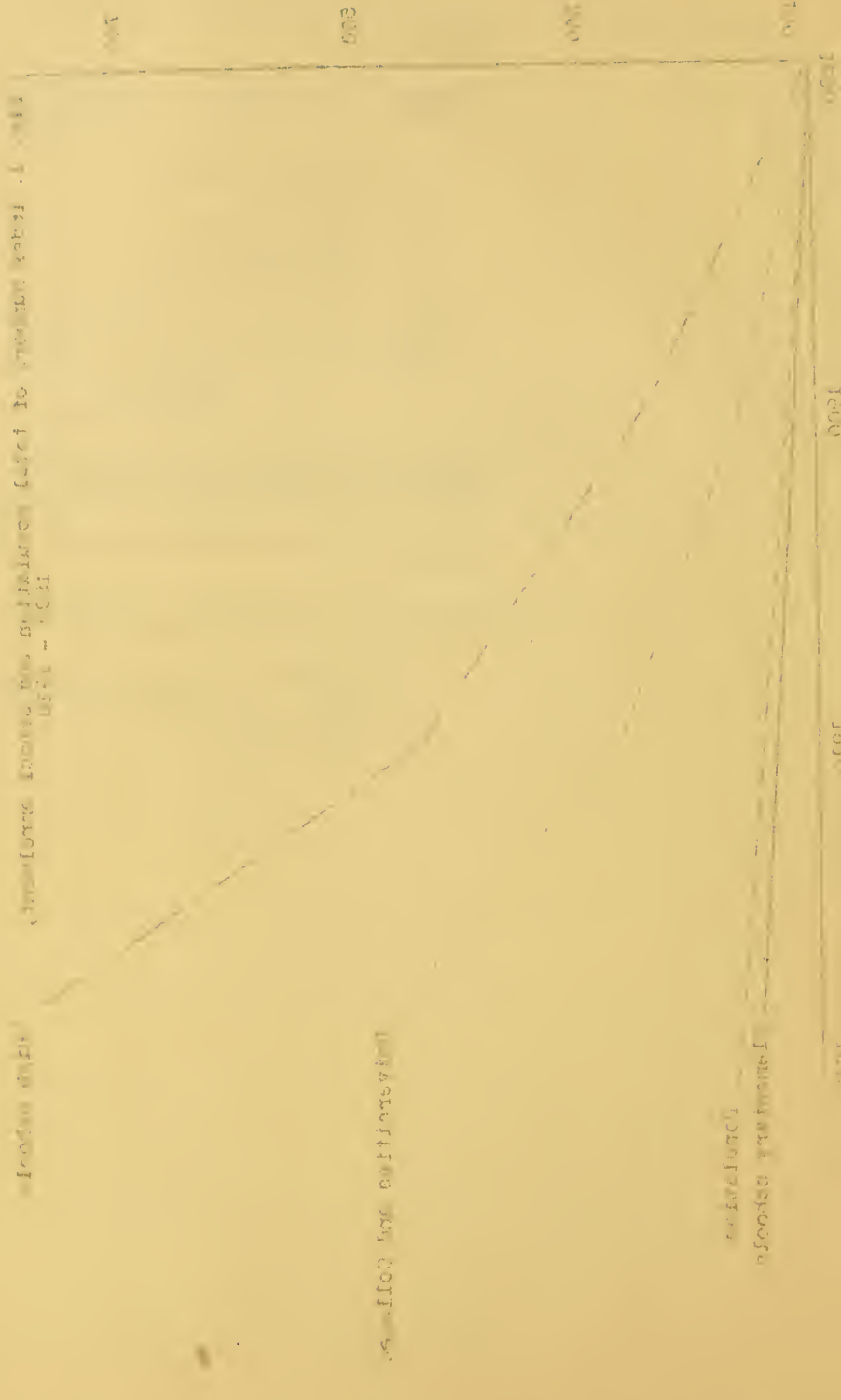


FIG. 1. - PERCENTAGE OF TOTAL POPULATION AND PERCENTAGE OF TOTAL AREA.

PERCENTAGE OF TOTAL POPULATION

PERCENTAGE OF TOTAL AREA

## SECTION I

The Distribution of Public Funds in  
Support of Different Types of Schools

It is recognized that the several types of educational institutions included among those receiving public support do not constitute a unit-system, and that aggregate or unit costs are not in themselves significant measures of the extent to which the several types of schools are adequately supported. The great majority of public higher institutions are under state control and derive their principal support from legislative appropriations and specific assessment upon the resources of the state as a whole. Elementary and high schools are largely under the control of lesser political units and receive approximately 80 per cent. of their revenue from local taxation. Moreover, the schools of different type and grade are designed and equipped to accommodate different population groups and to provide different types of training. The analysis here presented is therefore not interpreted as indicating that one phase of publicly supported education is more costly than it should be, or that any other phase is not adequately provided for. It is hoped, however, that the facts determined may provide a somewhat more definite basis than has heretofore obtained for the consideration of questions constantly arising in connection with the increasing demands upon the public purse made by the principal types of publicly supported schools. From this point of view it is appropriate to consider together the proportion of public funds going to the different levels of the common school system, comprising the public elementary and high schools, and the distribution of such funds among different types of higher institutions.

So far as the division of funds between the common schools and institutions of higher learning is concerned, the problem is simplified by the separate accounting naturally resulting from the fact that these are almost entirely under different units of control. There are a few municipal colleges or universities and a number of city normal schools deriving their support from the same taxation unit and being under the same administrative management as the public schools of the cities supporting them, but they are usually maintained by separate funds and their expenditures are separately reported.

There is, however, no such distinct differentiation in accounting for the expenditures involved in carrying on the work of the elementary and that of the high school grades of the common school system, nor in indicating the relative cost of academic and other types of training on the college level. It is therefore necessary to estimate such division on the basis of data supplied by either the individual schools or by agencies engaged in assembling facts concerning these schools, such as the state departments of education or the United States Bureau of Education.

For the purposes of a general survey of the school systems of the various states, the data included in the statistical reports of the United States Bureau of Education are the most serviceable. As regards the state common school systems, these reports are based upon information supplied by the state superintendent of public instruction or other principal school officer for the state reporting. In view of the fact that the state officers exercise a measure of control in the matter of recording and reporting school statistics, and since the reports to the Bureau of Education are made on uniform blanks by persons





familiar with the systems for which they are reporting, it is believed that the returns so assembled are better adapted to the purposes of this study than the separate reports of the state departments, were these readily available.

Separate studies of public high schools, city school systems, normal schools, and state colleges and universities are also made by the Bureau, the facts assembled being reported directly to the Bureau by some officer of the system or institution concerned. These reports suffer the disadvantage of being incomplete from year to year since the Bureau has no authority to require that reports be made. Also, they are subject to the errors common to all reports which involve interpretation as well as the recording and reporting of facts by a number of different individuals.

So far as the common schools are concerned the specific problem of this study is that of determining the division of public funds between the schools of elementary and of high school grade. While certain summaries regarding expenditures for state school systems in 1920, have been announced by the Bureau of Education, the latest available detailed report is for the school year ending June 30, 1918. Although the totals representing expenditures for different educational activities in 1918, will doubtless be somewhat at variance from corresponding figures for later years, the procedure in determining the distributions here reported can be indicated only by reference to the detailed reports, hence the material included in the present section relates to educational expenditures in 1918, for the several types of schools considered. Similar results for 1920, are included in the tables presented in Section II.

There is in general no separate accounting of expenditures for all phases of the administration of the elementary as distinguished from the high school grades of the common school system. In many city school systems and in a few state systems the effort is made to classify expenditures insofar as these may be allocated to the two units separately. But in school organizations comprising both elementary and high school units economy itself requires that certain functions of administration be performed for both by a single agency, so that an absolutely separate accounting exists only where the two units are under separate control. To determine with any degree of accuracy the relative cost of high and of elementary schools for even those states that distinguish as far as possible between these expenditures involves the assumption of some reasonably valid basis of apportionment of the undistributed items of expense within these systems. A fairly reliable estimate for the country as a whole may thus be derived from reports of a representative group of states.

In Bulletin of the Bureau of Education, No. 19, 1920, it is noted (p.73) that the reports for the common school systems of Arizona, California, Connecticut, District of Columbia, Louisiana, Maine, Utah, Vermont, and West Virginia present for 1918, a reasonably reliable separation of expenditures between elementary and high schools for all the principal functions of expense excepting general control (overhead), and interest on indebtedness. It is also noted that these nine systems enrolled in that year approximately 10 per cent. of all the pupils in the public schools of the country, and expended an amount slightly above 10 per cent. of the total expenditures of all state systems. The average length of the school term is shown to be exactly the same as that for the United States as a whole. Apparently these systems constitute a reliable sample of the entire group, and estimates based upon their reports may be regarded as reasonably representative of similar items in general.





Assuming that the expenditures by these nine systems for general control and interest on indebtedness, amounting to a little more than 4 per cent. of their total expenditures, may be divided between elementary and high school costs on a per pupil basis, it is found that the cost of high school education per pupil enrolled was \$84.49. The number of pupils enrolled in the high schools of all the states in 1918, was 1,933,821. On this basis, the total cost of high schools in the United States for that year was \$163,388,536, representing a little more than 21 per cent. of the cost of all state common school systems, reported as \$763,678,089.

In view of the close organic relationship between elementary and high schools it is obvious that certain items of school expense are much more readily classified as charges against elementary or high school administration within a given system than are other items. Especially is this true in the case of the large number of village school systems in which elementary and high school grades are housed in a single building. Of the principal classes of expenditures, the cost of instruction, including the items of teachers' salaries, supervision, materials employed in class room work, etc., is most readily divided between the higher and lower grades.

Inspection of reports of a number of different school systems indicates that there is a somewhat definite relationship existing between instruction costs and total costs for elementary and high school units. The following analysis of such expenditures in the nine state systems referred to shows the definiteness of this relationship where a number of schools are considered.

The total expenditures in the 9 states in 1918, amounted to \$76,940,194. Of this amount, \$3,165,741 was expended for general control and interest payments, leaving \$73,774,453 which could be distributed between elementary and high schools. As thus distributed, the amount spent for elementary schools was \$53,938,435. Since 88.2 per cent. of all pupils were enrolled in the elementary schools, this percentage of the undistributed costs is to be added to the distributed elementary school costs, giving a total cost of elementary schools of \$56,730,618. This represents 74.08 per cent. of the total expenditures for both elementary and high schools. The total cost of the item of instruction was \$48,181,684. The cost of instruction in the elementary schools alone was \$35,714,450, which is 74.10 per cent. of the total amount expended for this item. Thus it is seen that total costs divide themselves between elementary and high schools in approximately the same ratio as the expenditures for the single item of instruction.

Assuming that the same relationship holds for state school systems in general, such division for the United States as a whole may be determined by a similar analysis of instruction costs in the two types of schools. Thus, it is found that 78.6 per cent. of such costs was devoted to elementary schools. On this basis it is computed that the total cost of elementary schools in 1918 was \$600,250,978, the cost of high schools being thus determined as \$163,427,111. It will be recalled that the total cost of high schools as determined by a per pupil cost estimate was \$163,388,536. Since the two methods give approximately the same result, it is believed that the amounts stated represent a reasonably accurate estimate of the division of funds between elementary and high schools for the United States as a whole.



Determining the division of funds among the different types of institutions above high school grade involves the definition or classification of the institutions considered in terms of the curricula they maintain. The principal classes of higher schools supported by state or other public funds are the universities, agricultural and mechanical colleges, and normal schools. There are in addition a relatively small number of special schools, such as the New York State Library School, Virginia Military Academy, Lowell, (Mass.) Textile School, Mississippi College for Women, and Virginia Medical College. Among the normal schools, two types are found. Those whose curricula include four year's work above high school grade, and those offering from one to three years of advanced work. Some of those included in the former group have come to be recognized as schools of college rank, and are now usually termed teachers' colleges. For the purposes of the present classification these teachers' colleges are included with the college group, other normal schools constituting a separate division.

The distinction between universities and technical schools is rather clearly drawn so far as separate institutions are concerned. Of forty-six universities receiving a large measure of public support in 1918, thirty-eight are institutions established as state universities, two, Miami University and Ohio University, are separate state institutions including colleges of education; one, Cornell, is a private institution receiving appropriations from the state and the federal government; another, Howard University, is maintained by the federal government for colored students, and five are municipal universities. The largest single group of institutions which are clearly technical schools are the agricultural and mechanical colleges originally endowed by federal land grants and supported in part by appropriations authorized by Congress. Some of these land grant colleges are incorporated with the state universities, thereby falling within the university group. Up to 1905, the reports of the United States Commissioner of Education included a separate list of technological schools. As a basis of classification of the institutions included in the 1918 reports, this list as presented in the report for 1905, was used.

Inasmuch as this study is concerned with the distribution of public funds among the different types of institutions receiving such support, all institutions not under public control but supported in part by appropriations from public funds were classified on the basis of the amount of public money received. It was found that a number of institutions receive contributions from public sources, and that the aggregate amount is considerable. However, the list includes a great many independent colleges receiving only small contributions of this type. Reference to earlier reports showed that these contributions vary in amount from year to year and in many instances are not made regularly. Except for a small percentage of the total, the public funds contributed to privately controlled institutions go to a relatively small number of schools. It was therefore decided to include with publicly controlled institutions those private institutions which in 1918 received from public sources as much as 20 per cent. of their income exclusive of funds for increase of permanent endowment and receipts from fees for non-educational services. This list included St. John's College and Washington College in Maryland, Jefferson Medical College in Pennsylvania, Milligan College in Tennessee, and Middlebury College in Vermont, classified as colleges; Worcester (Mass.) Polytechnic Institute; and four universities, Norwich University of Vermont, The University of Pittsburg, the University of Pennsylvania, and Temple University in Philadelphia.





The list of schools as finally classified as a basis for determining the division of funds between the three types is here shown. The normal schools are not listed for the reason that they are clearly distinguished from schools included in the other groups.

# CLASSIFIED LIST OF COLLEGES, UNIVERSITIES, and TECHNICAL SCHOOLS

## UNIVERSITIES

University of Alabama  
 University of Arizona  
 University of Arkansas  
 University of California  
 University of Colorado  
 Howard University  
 University of Florida  
 University of Georgia  
 University of Idaho  
 University of Illinois  
 University of Indiana  
 State University of Iowa  
 University of Kansas  
 University of Kentucky  
 Louisiana State University  
 University of Maine  
 University of Michigan  
 University of Minnesota  
 University of Missouri  
 University of Montana  
 University of Nebraska  
 University of Nebraska  
 University of New Mexico  
 Cornell  
 University of North Carolina  
 University of North Dakota  
 Ohio University  
 Miami University  
 Ohio State University  
 University of Oklahoma  
 University of Oregon  
 University of South Carolina  
 University of South Dakota  
 University of Tennessee  
 University of Texas  
 University of Utah  
 University of Vermont  
 University of Virginia  
 University of Washington  
 West Virginia University  
 University of Wisconsin  
 University of Wyoming  
 Temple University  
 University of Pennsylvania  
 University of Pittsburgh  
 Norwich University  
 University of Louisville  
 University of Akron  
 University of Cincinnati  
 Toledo University

## TECHNICAL SCHOOLS

Alabama Polytechnic Institute  
 Alabama Girl's Technical Inst.  
 Colorado Agricultural College  
 Colorado School of Mines  
 Connecticut Agricultural College  
 Delaware College  
 Georgia School of Technology  
 North Georgia Agricultural College  
 Idaho Technical Institute  
 Purdue  
 Iowa State College of Agriculture  
 and Mechanic Arts  
 Kansas State Agricultural College  
 United States Naval Academy  
 Maryland State College of Agri-  
 culture (a)  
 Massachusetts Agricultural College  
 Massachusetts Institute of Tech-  
 nology  
 Lowell Textile School  
 Worcester Polytechnic Institute  
 Michigan Agricultural College  
 Michigan College of Mines  
 Mississippi Agricultural and Mechan-  
 ical College  
 Montana State College of Agricul-  
 ture and Mechanic Arts  
 Montana School of Mines  
 New Hampshire College of Agricul-  
 ture and Mechanic Arts  
 Rutgers  
 New Mexico School of Mines  
 New Mexico College of Agriculture  
 and Mechanic Arts  
 New York State College of Forestry  
 North Carolina College of Agricul-  
 ture and Engineering  
 North Dakota Agricultural College  
 Oklahoma Agricultural and Mechan-  
 ical College  
 Oregon Agricultural College  
 Pennsylvania State College  
 Rhode Island State College  
 Military College of South Carolina  
 South Dakota State College of Agri-  
 culture and Mechanic Arts  
 Agricultural and Mechanical College  
 of Texas  
 Texas College of Industrial Arts  
 Agricultural College of Utah  
 United States Military Academy  
 Virginia Polytechnic Institute  
 Virginia Military Institute  
 Washington State College

(a) Now the University  
 of Maryland





COLLEGES

Colorado State Teachers' College  
 Florida State College for Women  
 Iowa State Teachers' College  
 Mississippi College for Women  
 New York State College for Teachers  
 College of the City of New York  
 Hunter College of the City of  
   New York  
 New York State Library School

Oklahoma College for Women  
 St. John's College  
 Washington College  
 Jefferson Medical College  
 Virginia Medical College  
 College of William and Mary  
 Milligan College  
 College of Charleston  
 Middlebury College

On the basis of this classification it was found that of the total amount of public money contributed to these schools in 1918, about 45 per cent. went to universities, 27 per cent. to technical schools, 24 per cent. to normal schools, and somewhat less than 4 per cent. to the colleges.

If the distribution of public funds among these types of schools is considered from the point of view of providing for or extending the educational opportunities afforded by the state or the nation, it is doubtful whether the aggregate of income derived from public sources alone is the best measure of the service rendered by such distribution.

For example, the aggregate of funds derived by universities in 1918, from state or federal appropriations and from subsidies provided by cities from their revenue receipts was thirty million dollars. The total income of the same institutions, excluding receipts for increase of endowment and those from fees for non-educational services, as board and room rent, was forty-three million. It is clear that the thirteen million dollars which these universities derived from fees, productive funds, earnings, etc., would provide but meagre facilities for work of university grade in 48 separate institutions. But if such amount is distributed among these institutions after the necessary costs of operation and instruction are largely provided for by appropriations from public funds, the opportunities for advanced study which these institutions can offer will be materially increased. It is obvious, moreover, that the portion of the income of higher institutions which is derived from fees, earnings, etc., is largely the result of the fact that the principal funds required for their maintenance have been provided for. That is, the minor receipts are in a measure attracted to these institutions by the funds they receive from public sources. For this reason it is believed that the total income from the sources specified is the more significant index of the distribution of public support among the types of schools considered. It may be noted also that the percentage of funds available for each group of schools is only slightly different from the percentage distribution of public funds among the groups. These percentages are shown in Table I.

A further classification may be made of universities and technical schools on the basis of the number of students enrolled in technical courses. When the institutions reporting at least 50 per cent. of all regularly enrolled students in technical courses are placed in one group, it is found that changes occur in the classification of only eight schools, and that the total income of the schools included in this group differs from the total reported for the original technical group by only about 5 per cent.





Table I. Distribution of total funds and funds derived from public sources among different types of schools, 1918. (a)

(Totals in millions of dollars.)

	<u>income</u>		<u>income from public sources</u>	
	<u>total</u>	<u>per-cent</u>	<u>total</u>	<u>per-cent</u>
Elementary schools	600	70.34	536	71.62
High Schools	163	19.11	146	19.51
Universities	43	5.04	30	4.01
Technological schools	23	2.69	18	2.40
Normal schools	21	2.46	16	2.14
Colleges	3	.35	2.4	.32
Totals	853		748.4	

Summarizing the findings for the two classes of schools considered, the state common school systems and publicly supported higher institutions, it is found that a total of 853 million dollars was expended in 1918 in support of educational training of the types specified. Of this amount, approximately 90 per cent. was expended in support of elementary and high schools. Of the total thus expended, 763 million dollars, 21.4 per cent. went to the support of high schools. Universities and technical schools reported a total income of 66 million dollars, 48 million being derived from public sources. The public funds were divided between the two classes of schools in the ratio of 5 to 3, the universities receiving the larger portion. The normal schools comprise the largest group of higher institutions and reported a total income only about 10 per cent. less than that of the technical schools. The colleges comprise the smallest group and their expenditures amounted to only about one-third of one per cent. of the total reported for the six types of schools considered. Table I shows the amount and the percentage of the total which was employed in maintaining each of these six classes of schools. The following section will indicate the manner in which these distributions have varied during the period from 1910 to 1920.

(a) From data of Bureau of Education Bulletins: No. 81, 1919, and Nos. 11, 19, and 34, 1920.





## SECTION II.

Tendencies in the Distribution of Funds Among  
Different Types of Schools from 1910 to 1920.

In undertaking to determine the proportionate amounts of money expended from year to year by the several classes of schools supported by public funds, the limitations of the reports upon which estimates may be based must be taken into account. Except for the year 1912, the only data assembled by the Bureau of Education concerning high schools alone prior to 1918 were included in reports made directly by officers of these institutions or of the local school systems to which they belonged. That is, there were no separate high school reports returned by state school officers. Since the Bureau cannot demand reports of persons in charge of high schools, the statistics prior to 1918 are not complete for any given year except 1912, when reports were received from state departments. Thus it is certain that the total enrollment in public high schools in each of the other earlier years was somewhat in excess of the figure reported by the Bureau.

As regards expenditures, there was no attempt in these earlier years to secure classified statements for all high schools for the reason that accounts were not so kept for the majority of such schools. However, a statement of the amount of money available for meeting the expenses of high school training was requested each year from these school systems that were prepared to make such reports. These reports were examined in connection with other data concerning the same systems, and those reports coming from systems in which the high school items were clearly distinguished were considered separately. On the basis of these returns, the cost per pupil enrolled in this group of high schools was determined. Since the number and distribution of such schools usually appeared to make the group fairly representative of high schools in general, it was assumed that this per pupil cost multiplied by the number of pupils in all high schools gave a reasonably reliable estimate of the total cost of maintaining all high schools. Except for the fact that the enrollment figure reported was certainly less than the actual total, the estimate was probably as accurate as could be made from any available information for those years.

It happens that in 1918 returns were made for high schools both by officers in charge of individual schools and by state school officers. The total high school enrollment shown by the individual reports was 1,645,171, while the state reports showed an enrollment of 1,933,821. The actual enrollment for this year is thus found to be 1.175 times the number enrolled in the schools for which reports were made directly to the Bureau.

While it is not possible to determine the exact amount of discrepancy in these reports concerning high school enrollment for the years prior to 1918, it is probable that the high schools reporting from year to year constituted a fairly constant percentage of the total number in operation. It seems, therefore, that the most reliable estimate of the total high school enrollment which can be made for these years is to be found by multiplying the reported enrollment for each year by the constant 1.175. The estimated total cost of high schools as shown in Table II for the years 1910, 1914, and 1916, was determined for each year by multiplying this corrected enrollment figure by the per pupil cost calculated for those schools submitting adequate reports. In the case of 1912, the enrollment reported by the state departments was



used. The cost of elementary schools for each of these years is found by deducting the computed cost of high schools from the total cost of common school systems as shown by the state reports.

The total cost of common schools in 1920 was \$1,036,151,209. An examination of the detailed tables of the 1920 reports (now in press) was made at the office of the Bureau of Education, but no adequate basis of apportionment of this total between elementary and high schools is shown for that year. In the report relating to high schools in 1918, it is shown that the cost per pupil in high school was 2.67 times the cost per elementary school pupil. (a) In the present study it is assumed that this ratio obtained in 1920 also, and the total cost of common schools is divided between elementary and high schools on this basis.

In determining the distribution of funds among the higher institutions receiving public support, the classification shown in Section I is followed, and the total income as there defined is considered rather than income from public sources alone. The list of schools is changed, however, by the omission of the ten schools not principally supported by public funds, but included as a means of securing a more complete accounting of the distribution of such funds for the year 1918. These schools are St. John's College, Washington College, Worcester Polytechnic Institute, University of Pittsburg, Jefferson Medical College, Temple University, University of Pennsylvania, Milligan College, Middlebury College, and Norwich University; also several normal schools had become teachers' colleges by 1920, thus transferring to the college group. On the basis of this classification the aggregate income of the institutions selected was distributed in alternate years from 1910 to 1920, as shown in Table II, which includes similar data for elementary and high schools. The relative rates of increase for all except the college and normal school groups, which are affected by the reclassification of teachers' colleges, are shown in Figure 2.

Table II. Distribution of funds among different types of schools, 1910 - 1920

	Expenditures in millions of dollars					
	1910	1912	1914	1916	1918	1920
Elementary Schools	375	419	473	539	600	795
High Schools	51	64	82	102	163	240
Universities	22	25	30	33	40	58
Technical Schools	11	12	14	18	23	38
Normal Schools	12	12	16	18	21	18
Colleges	.7	.9	1.8	2	2.6	11
Totals	471.7	532.9	616.8	712	849.6	1160

(a) Statistics of Public High Schools, 1917-18. Bureau of Education Bulletin No. 19, 1920, P. 77.







FIG. 2. Index Numbers of expenditures for different types of schools, 1910-20.

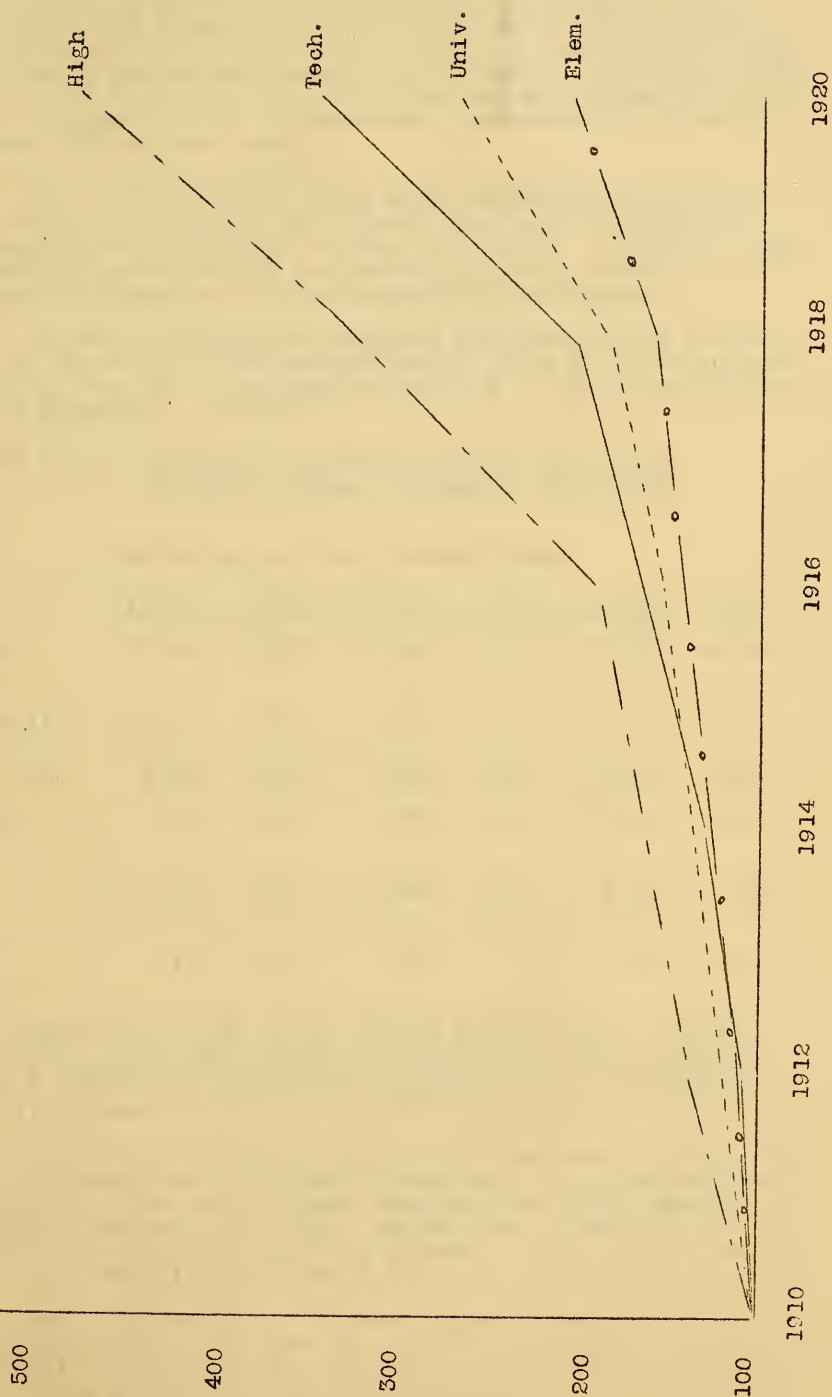




FIG. 5 TEMPERATURE OF HEATING OF AL, FE, CU, AND Pb

The tendencies in such distribution during the period considered are rather more clearly indicated by the percentage derivatives shown in Table III. One of the striking facts indicated by these percentages is the decidedly constant ratio of the total amount expended in support of common school systems to the aggregate cost of all types of schools considered. In the six different years for which the distribution is shown the range of variation in percentage devoted to elementary and high schools together is not more than 1.5, the total amount devoted to the support of common schools representing approximately 90 per cent. of all expenditures each year.

The constant ratio here shown apparently signifies a somewhat definite relationship between the funds required for public educational activities on the two levels. However, this fact should be considered in connection with the distribution of funds among the types of schools comprising each group.

The most significant tendency revealed by the percentages is the increase in the proportion of funds going to support high schools, and the corresponding decline in the percentage expended for elementary schools.

Table III. Percentage distribution of funds among different types of schools, 1910-1920.

	Percentage of total expenditures					
	1910	1912	1914	1916	1918	1920
Elementary Schools	79.50	78.63	76.69	75.70	70.62	68.53
High Schools	10.81	12.01	13.29	14.32	19.18	20.69
Universities	4.66	4.69	4.86	4.63	4.71	5.00
Technical Schools	2.33	2.25	2.27	2.53	2.71	3.27
Normal Schools	2.54	2.25	2.59	2.53	2.47	1.55
Colleges	.15	.17	.29	.28	.31	.95

The relation of common school expenditures to total expenditures for all schools and the tendency of high schools to absorb a constantly increasing proportion of the amount devoted to all common schools are indicated together in Figure 3.

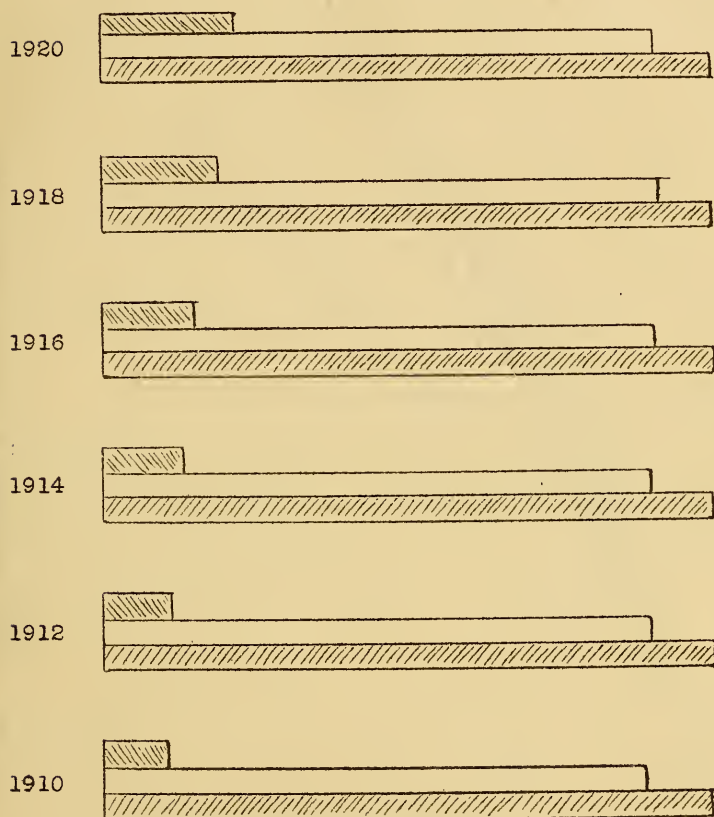
Here it is shown that within the ten year period covered by this study the high schools have more than doubled the percentage of common school funds required for their support, although the expenses of the high schools and elementary schools together have increased relatively no more rapidly than expenditures for all publicly supported schools.

The explanation of the more rapid increase of high school expenditures is in part revealed by the records of increase in enrollment, especially when the relative increase in the enrollment of the different high school grades is taken into consideration. Figure 4 shows clearly the tendency of high schools





FIG 3. Percentage of total expenditures for public education devoted to common schools, and percentage of common school expenditures devoted to high schools, 1910 - 20.



NOTE: In the above chart two different comparisons are presented. The lowest bar indicates the total expenditures for public education in the types of schools here studied for the years specified, the total expenditures being taken as 100% in each case. The second bar indicates the percentage that the expenditures for elementary and high schools constitute of the total expenditure represented by the first bar. The third bar indicates in similar manner the percentage of the total devoted to elementary and high schools together which goes to high schools alone. Thus it is shown that while elementary and high schools together have received a practically constant proportion of the total of public appropriations, high schools have from year to year claimed an increasing percentage of the total amount available for common schools.

FIG. 2. Percentage of total expenditures for public education devoted to common schools, and percentage of common school expenditures devoted to high schools, 1910-1930.



NOTE. In the above chart two different comparisons are presented. The lowest bar indicates the total expenditures for public education in the type of schools here mentioned for the years specified, the total expenditures being given as 100% in each case. The second bar indicates the percentage that the expenditures for elementary and high schools constitute of the total expenditure represented by the first bar. The third bar indicates in similar manner the percentage of the total devoted to elementary and high schools together with ages to high schools alone. Thus it is seen that while elementary and high schools together have received a practically constant proportion of the total public appropriation, high schools have been able to secure an increasing percentage of the total amount available for common schools.

FIG. 4. Index numbers of high school enrolment by grades, 1908-1918.

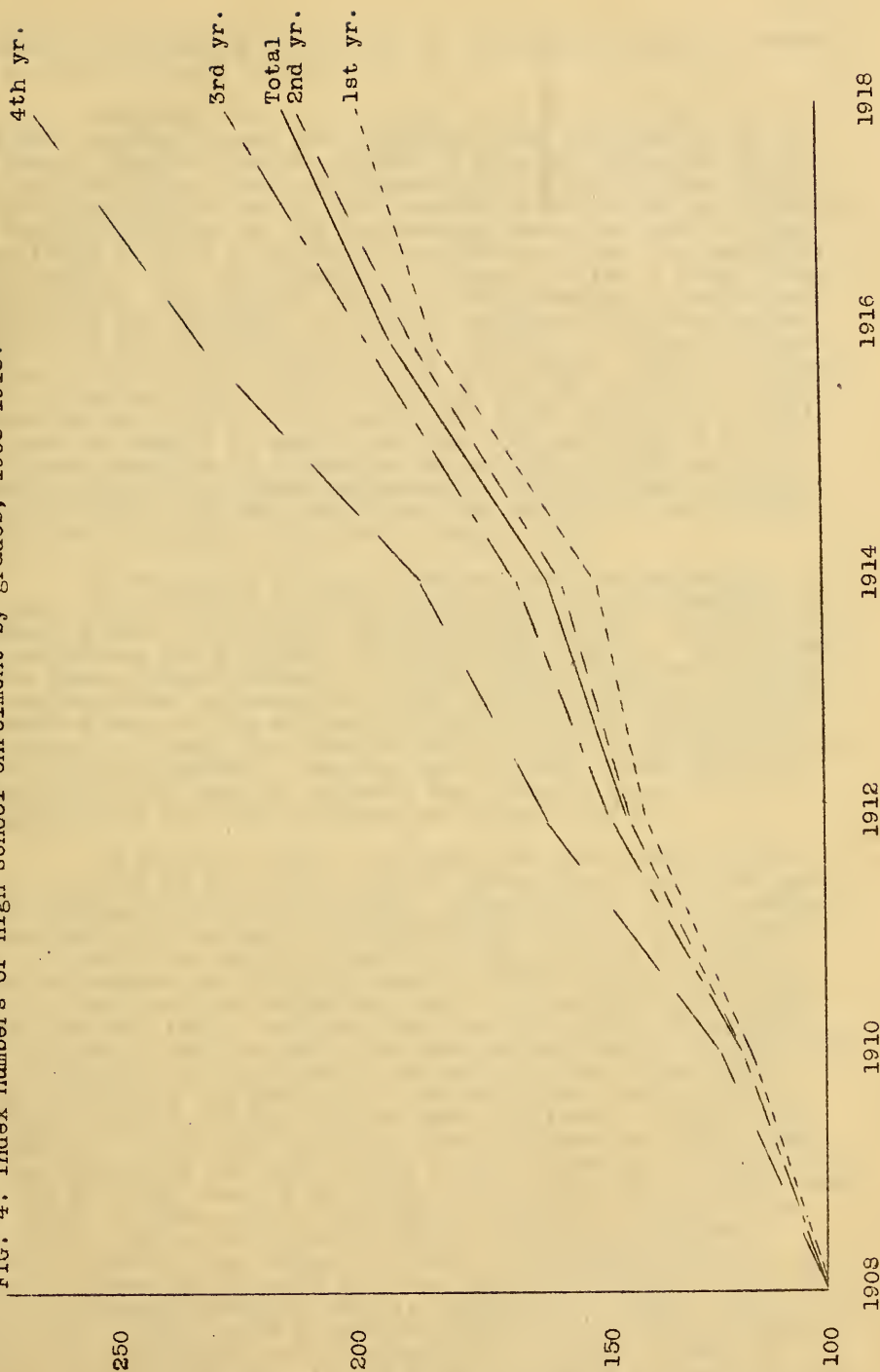




FIG. 1. RELATIONSHIP OF TIME AND TOTAL FOR EACH OF THE FOUR SERIES.



to carry an increasing proportion of the enrolled pupils through the secondary school course.

From the data of Table III it is obvious that the bulk of public appropriations for education must continue to go to the common schools. In the effort to plan for adequate provision for the school needs of elementary and high school pupils it is a common practice of local boards of education to estimate the requisite budget of the approaching years in terms of such known facts as will likely have some bearing upon the amount of money needed. For the country as a whole, or for a given state school system, the details of school requirements in individual communities are obscured, so that an estimate of future costs cannot take into account many of the specific factors that contribute to the total actual cost of the system. The two factors which determine actual costs and which can be ascertained with reasonable accuracy for any period for which records are available are the number of pupils and the cost per pupil. It is not always possible to determine the actual cost per pupil in elementary and high school separately. In fact, where the two units are under one administration, the per pupil cost figure is in part an estimate even for a single city.

On the basis of such facts as could be determined, estimates of per pupil costs in elementary and high schools are frequently made for various administrative units. In Table II such estimates are presented for the United States. The reports of the State Superintendent of Public Instruction for Illinois include separate estimates for high schools which are based upon reports made by the officers of all districts maintaining high schools. Using the data of Table II for the United States and the superintendent's reports for Illinois, since 1912, an attempt has been made to estimate the probable cost of the common schools for each of these two units in 1925.

In Figures 5 and 6 are shown the curve which represents the cost of the common school system for a period of years in the United States and Illinois, respectively. This portion of the curve is the solid line extending to 1920. The dotted line of projection merely extends to the point on the scale which represents the probable cost in 1925, in each case, and does not indicate the estimated cost at intermediate dates between 1920 and 1925. The point on the scale which represents the estimated cost for 1925, has been determined by constructing for elementary and high schools separately that trend line which represents the product of per pupil cost and enrollment for the period for which records were available. These lines projected to cover the period to 1925 indicate the total cost of the elementary and high school units separately at that year. The sum of these amounts is taken as the total cost for the common school system, and the appropriate point is indicated on the scale. Thus, for Illinois, it is estimated that the probable cost of high schools in 1925 will be \$24,500,000. The cost of elementary schools is found to be \$60,700,000. The total approximately \$85,200,000, is indicated in Figure 6 as a projection of the curve of common school costs. For the United States the estimated cost of elementary and high schools in 1925 is \$1,315,000,000. If the ratio indicated in Figure 3 continues as for the past ten years, the estimate here presented indicates that the total cost in 1925 of the types of publicly supported schools considered in this study will be approximately \$1,500,000,000.



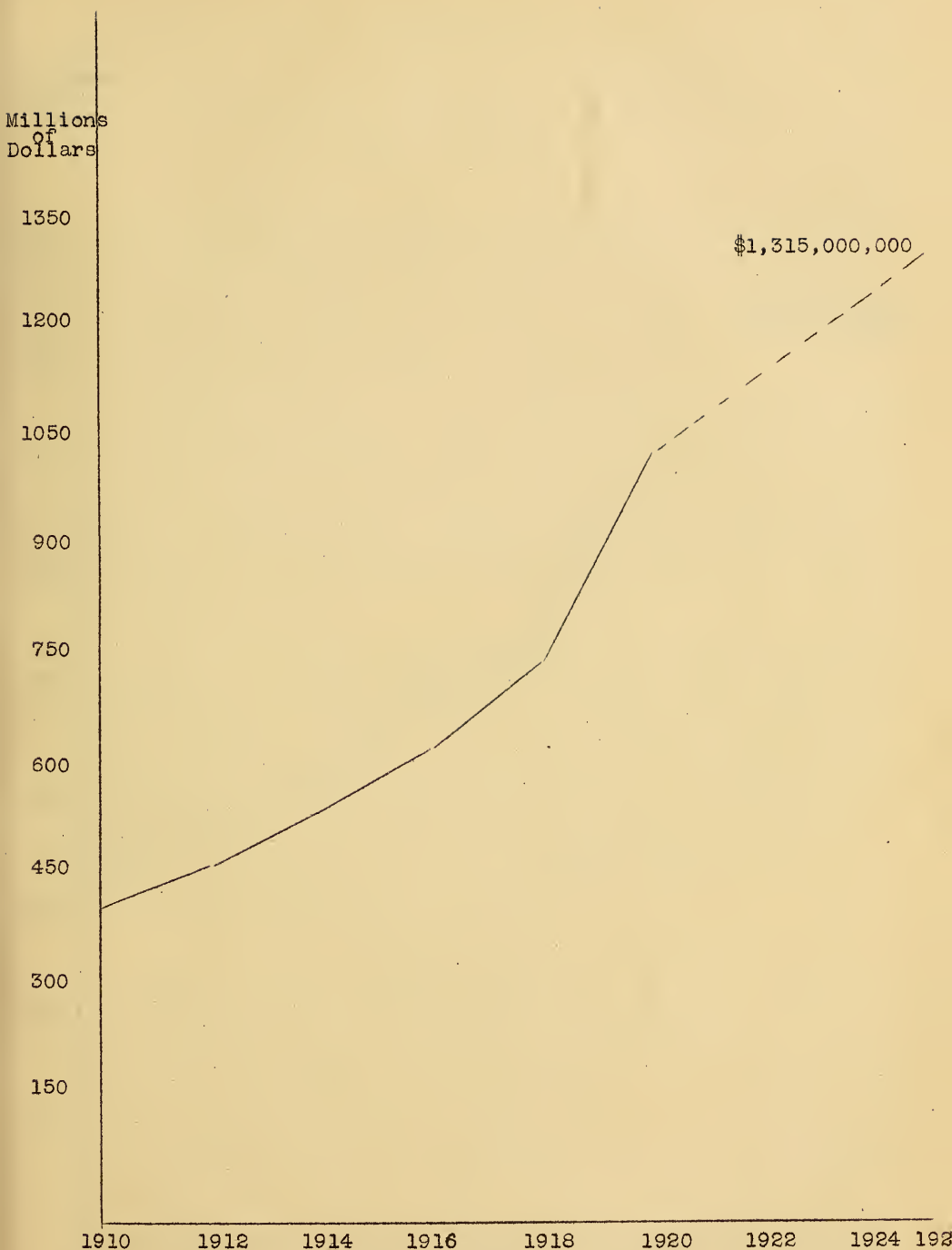


FIG. 5 - Projection of curve of common school costs in the United States to indicate probable cost in 1925.

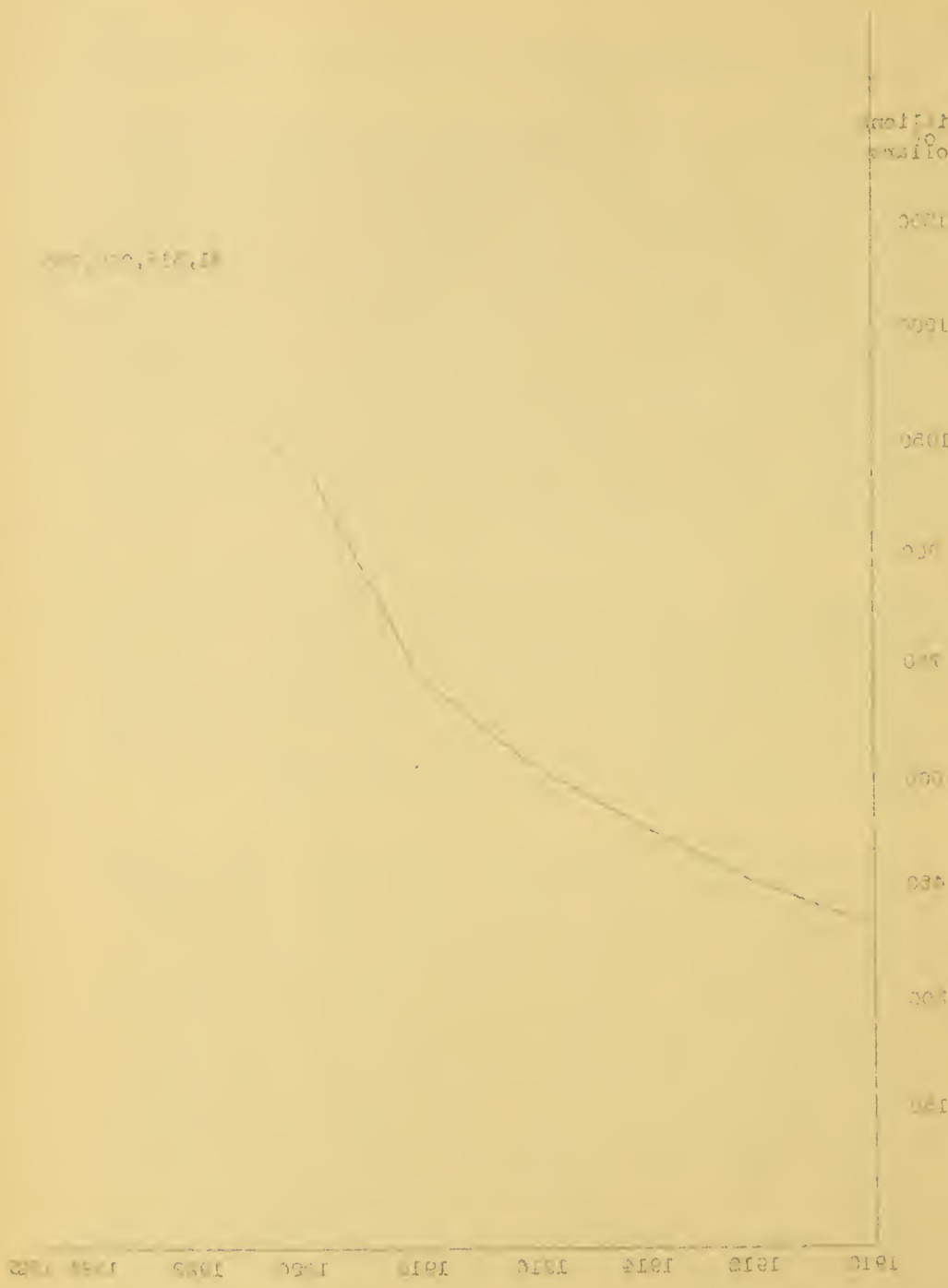


FIG. 5 - Projection of curve of common school costs in the United States to indicate probable cost in 1925.





FIG 6. Projection of curve of common school costs in Illinois to indicate probable cost in 1925.

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## SECTION III

The Cost per Student in Different  
Types of Schools

The significance of per capita cost figures for schools or school systems of different type depends upon the bases on which the cost figures are computed. If it is desired to compare the cost per student for a specified type of training in a selected group of institutions, care must be taken to select only the items of expense that contribute to the cost of such training in each institution considered. If the institutions are of similar type it may be possible to secure data which will yield unit cost figures for the several institutions that are more or less precisely comparable. If the institutions are of different type, it is likely that comparisons will have to be made on a somewhat less refined basis. When comparisons are proposed which involve various types of training in different types of schools and school systems, it is obvious that the general aspects of the units are to be dealt with. The present study is concerned with the cost of publicly supported educational training in general, rather than with such specific comparisons as might be of interest in considerations relating to administrative policy, curriculum readjustments, etc.

The classes of schools specified in Section I of this report include two general groups, the common schools, comprising the elementary and high schools, and the higher institutions. It is evident that the cost per student of maintaining these two classes of schools can indicate only the relative expense of providing two different types of training, and will signify nothing with respect to economy or extravagance in the administration of the two classes of institutions which provide this training. Similarly, the per capita cost figures for the two divisions of the common school system and for the different types of higher institutions here presented are not regarded as in any sense a valid basis of comparison of the efficiency of the institutions or of the value of the training offered.

As a matter of general interest, the cost per student in the common schools of certain states and cities are included in this section, but it is recognized that there are restrictions upon the inferences that may be drawn. For example, it is shown in Table VI that the cost per pupil in average daily attendance for the current expenses of the public schools of Minneapolis in 1919-20, was about \$100. In certain other cities the like cost is less than half that amount. While there is no denying the fact that variations of this degree imply a distinctly more adequate provision for effective teaching of the children of the one city, the contrast may or may not be as great as the per pupil cost figures would suggest. There are such variations in the plan of organization and the administrative policy of different city school systems and in the relations existing between the schools and other municipal institutions, that cost figures often apply to widely different situations in different city systems. For example, elaborate provisions are made by some city school systems for health work and recreation. In other cities these are rather largely cared for by other divisions or institutions of the municipality. It is clear that the cost per pupil for the current expenses of the schools will not be on a comparable





basis in the two cases. It sometimes happens that such comparison between different years for the same system will be affected by a change in administrative policy of the schools, as when last year the Chicago city schools were called upon to take over the administration of certain recreational activities, thus adding several hundred thousands of dollars to the expenses of the school system.

When the higher institutions that are largely supported by public funds are classified as in Section I, it is found that the income of the university group in 1920 was approximately 56 million dollars. On the basis of the number of pupils enrolled during the regular school year in the same institutions, the amount available per student was \$451.90. If the income of these institutions which come from public sources alone is considered, the amount per student was \$293.97. For the group of technical schools, the corresponding amounts per student were \$695.39 and \$400.18.

In 1919 only three of the state normal schools were reported on separately as teachers' colleges. The 1920 report (a) lists 45 such institutions. Since these constitute a much larger group than the colleges, the classification given in Section I is not followed here, but the teachers' colleges are considered separately. Omitting the teachers' colleges, the cost per student in the seven colleges included in that list was \$414.81.

The 45 teachers' colleges reporting in 1920 are distributed among twenty states. Since all of these institutions have summer sessions of somewhat uniform length, the total enrollment for the year is employed in determining the cost per student. On this basis, the income of these institutions in 1920 was \$141.11 per student. The amount received from public sources was \$119.06. In 135 state normal schools, not classified as teachers' colleges, the income per student enrolled was \$173.26, while the amount received from public funds was \$155.36 per student. The income per student of the several types of higher institutions on the basis of both total income and the amount received from public sources is shown in Table IV. The cost per student in teachers' colleges for the six states reporting 3 or more such institutions is shown in Table IV-a.

Table IV. Income per student enrolled in different types of higher institutions, 1920.

	<u>Income per Student</u>	
	<u>Total Income</u>	<u>Public Funds</u>
Universities	\$451.90	\$293.97
Technical schools	695.39	400.18
Colleges	414.81	339.27
Teachers' Colleges	141.11	119.06
Normal schools	173.26	155.36

(a) Statistics of Teachers' Colleges and Normal Schools,  
Bureau of Education Bulletin No. 8, 1922.

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Table 1. Summary

Year	1961	1962
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FIG. 7. Amount of income from public sources per student enrolled in different types of higher institutions, 1920.

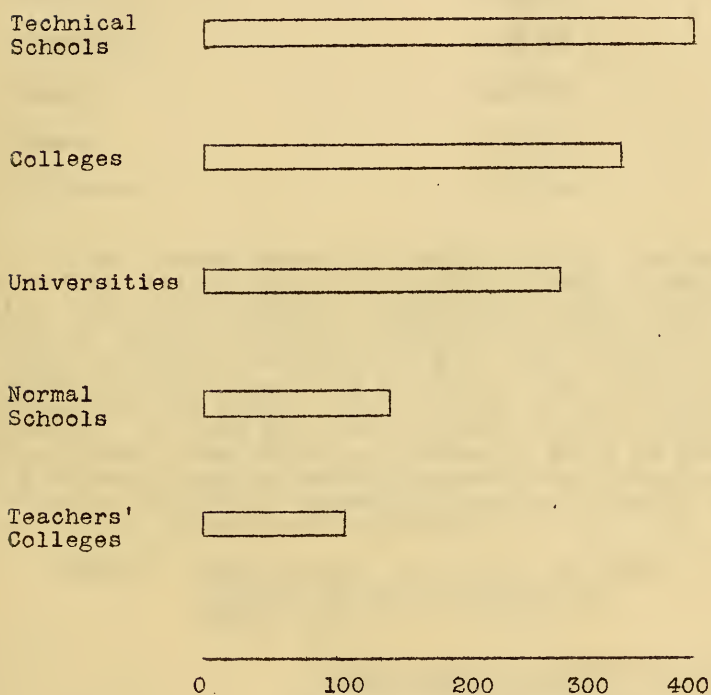


FIG. 7. Amount of income from public sources  
per student enrolled in different types of  
higher institutions, 1930.

Technical  
Schools

Colleges

Universities

Normal  
Schools

Technical  
Colleges

0 100 200 300 400



The difference in the amounts shown for teachers' colleges and for state normal schools, both of which are engaged in the same type of work, is probably accounted for by the fact that the latter group includes a number of comparatively small institutions in which the cost per student is relatively high. The teachers' colleges in general are among the larger and better equipped teacher training institutions, and the lower per capita cost results from the assembling of larger groups of students.

Table IV-a. Income per student of the teachers' colleges of certain states, 1920.

<u>States</u>	<u>income per student</u>
Missouri	\$178.53
Michigan	158.02
Nebraska	142.09
Texas	138.74
Kansas	129.61
Illinois	79.41

In the United States as a whole the cost per pupil in average daily attendance in the public schools in 1920 was \$64.16. This is an increase of \$23.73 per pupil since 1915. The cost of public schools per inhabitant of the United States was \$9.80 in 1920, an increase of \$3.77 per inhabitant since 1915. The variation in the cost per student or the cost per inhabitant of maintaining the public school systems of the different states is striking. In 1918 the cost per pupil enrolled for current expenses varied from \$59.61 in Montana to \$7.89 in Mississippi. Even a selected group of states representing a single geographical division and fairly comparable in other respects reveal like variations, as is indicated by Table V.

Table V. Expenditures in support of public schools by certain states in 1920. (a)

<u>State</u>	<u>expenditures for public schools</u>		
	<u>total</u>	<u>per pupil</u>	<u>per inhab.</u>
Illinois	\$71,212,070	\$63.15	\$10.96
Missouri (b)	35,168,763	48.53	10.33
Indiana	20,889,797	37.18	7.13
Michigan	47,004,620	70.79	12.81
Wisconsin	27,511,128	59.13	14.52

(a) Data from reports of state departments of education.

(b) 1921.



Variations of the type indicated between different state systems reveal rather more directly differences in the degree to which public schools are adequately supported than is the case when comparisons are made between smaller school units. The differences in state systems are generally more or less balanced by variations in the systems of the individual school districts. It may be assumed therefore, that the schools of those states in which relatively small amounts per student are expended must suffer many disadvantages in comparison with those for whose pupils adequate sums are provided.

The cost per pupil in city school systems shows striking variations for cities of the same size, as well as between cities of different population groups. When a single city system is considered in relation to other cities, the total expenditures do not furnish as satisfactory a basis of comparison as the current expenses alone. This is due to the fact that expenditures for increasing the school plant and equipment vary from year to year to a much greater extent than do the current expenses which provide for the more regular activities of the schools. While allowance must be made for the differences in organization of the different city systems compared, per pupil costs on the basis of current expenses in a group of cities are significant as indicating tendencies. Where wide variations are observed, however, inferences with regard to adequacy of school support should be made only in the light of detailed information regarding the work the schools undertake to do. Table VI indicates the extent of variation to be found when cities of different population groups are considered. If such variations are to be noted for elementary and high schools separately, further caution must be observed on account of the difficulty of dividing the expenditures of a given system between these two units. The cost per pupil for the expenses of instruction alone is probably the most satisfactory basis of comparison for the two types of schools in different systems. These are shown for a selected list of cities of different size in Table VI-a.

Table VI. Amount expended per pupil in average daily attendance for the current expenses of certain city school systems, 1920. (a)

population over 100,000		population 30,000 to 100,000	
city	cost per pupil	city	cost per pupil
Seattle, Wash.	\$106.07	Meriden, Conn.	\$167.41
Buffalo, N. Y.	103.74	Butte, Mont.	122.42
Minneapolis, Minn.	100.48	Pasadena, Calif.	110.61
Los Angeles, Calif.	96.24	Berkeley, Calif.	110.27
Cincinnati, Ohio	93.25	Des Moines, Ia.	104.03
Oakland, Calif.	92.16	Cedar Rapids, Ia.	94.77
St. Paul, Minn.	91.86	Sacramento, Calif.	94.55
Portland, Ore.	89.51	Boyonne, N. J.	92.79
Cleveland, Ohio	89.39	Fort Wyne, Ind.	88.89
Indianapolis, Ind.	87.94	Utica, N. Y.	88.51
Detroit, Mich.	86.60	Duluth, Minn.	80.12
Grand Rapids, Mich.	86.16	Wheeling, W. Va.	79.09
Omaha, Nebr.	85.79	Springfield, Ill.	77.42
Columbus, Ohio.	84.55	Canton, Ohio	76.60
Newark, N. J.	84.06	Salt Lake, Utah.	75.94
Spokane, Wash.	83.97	Tacoma, Wash.	75.17
Kansas City, Mo.	83.07	Akron, Ohio	74.22
Worcester, Mass.	80.36	Oshkosh, Wis.	70.09

(a) Data from Statistics of City School Systems, 1919-20.

Bureau of Education Bulletin (in press).





Chicago, Ill.	\$79.51	Kansas City, Kans.	\$69.09
Rochester, N. Y.	78.84	Peoria, Ill.	69.00
Pittsburgh, Pa.	77.86	Oklahoma, Okla.	68.35
Philadelphia, Pa.	76.13	Manchester, N. H.	66.85
St. Louis, Mo.	76.09	Pawtucket, R. I.	66.66
Milwaukee, Wis.	75.74	Topeka, Kans.	64.98
Fall River, Mass.	75.43	New Britain, Conn.	64.74
Boston, Mass.	74.72	Binghamton, N. Y.	63.26
Washington, D. C.	74.57	Calumet, Mich.	62.47
San Francisco, Calif.	74.07	Salem, Mass.	61.44
Jersey City, N. J.	71.04	Altoona, Pa.	60.99
Denver, Colo.	70.75	Flint, Mich.	60.71
Lowell, Mass.	69.93	Terre Haute, Ind.	59.75
New York, N. Y.	68.30	Wilkesbarre, Pa.	58.70
Paterson, N. J.	65.73	San Antonio, Tex.	57.30
Providence, R. I.	63.51	Galveston, Tex.	56.54
Syracuse, N. Y.	62.93	Decatur, Ill.	56.08
Bridgeport, Conn.	62.52	Covington, Ky.	53.19
Scranton, Pa.	58.18	Lynn, Mass.	53.09
Richmond, Va.	57.11	El Paso, Tex.	48.65
Louisville, Ky.	54.83	Little Rock, Ark.	45.97
New Haven, Conn.	52.05	Springfield, Mo.	43.12
Atlanta, Ga.	51.58	Portsmouth, Va.	38.99
New Orleans, La.	50.73	Charlotte, N. C.	33.06
Baltimore, Md.	49.03	Roanoke, Va.	35.30
Birmingham, Ala.	37.12	Montgomery, Ala.	30.24
Nashville, Tenn.	36.93	Savannah, Ga.	29.75

From the data of Table VI it is seen that Seattle expended in 1920 nearly three times as much per pupil in average attendance as did Nashville. Among the 45 cities of from 30,000 to 100,000 inhabitants, the highest city in rank reported expenses amounting to nearly six times as much per pupil as the one lowest in rank. It is interesting to note that the largest amounts shown for the 90 cities in these two groups are reported for cities of less than 100,000. However, the median city in the larger population group reported a higher per pupil cost than the median city of the second group, these being St. Louis and Pawtucket with per pupil expenditures reported as \$76.09 and \$66.66 respectively. Likewise, the average for the first group is higher, being \$75.55 as compared with \$70.72 for the second group. A list of 45 cities of from 10,000 to 30,000 inhabitants included in the same report shows a range of from \$108.29 to \$25.96 per pupil, the median city expending \$68.44. The average for the group was \$65.65. Thus, it appears that for representative groups of cities, the expenditures per pupil for current expenses are in general higher for the cities of larger size, but the medians for the groups here presented show that the costs may advance irregularly from group to group.

In Table VI-a the per capita figures are based upon reports of average daily attendance in elementary and high schools separately, and the reported expenditures for the item of instruction. This is the most practicable basis of comparison for these units separately, since other costs cannot be so readily distributed between the elementary and high school grades. The 21 cities composing each of the population groups were selected at random from a larger group of cities listed by states. Those listed in the table are ranked according to the amount expended.



per pupil for instruction. In these comparisons it is noted that the higher cost figures occur in the larger population groups. The cities of the first group are those of more than 300,000 inhabitants, those of the second group ranging between 100,000 and 300,000. The median cost for the two units separately in these two population groups and in a third group of cities ranging in population from 30,000 to 100,000 is shown in Figure 8.

As has been suggested, the comparisons shown in the tables of this section indicate differences in school costs for different types of training or tendencies which are apparent when groups of schools or school systems are considered. There are many limitations upon the data so far as specific comparisons between institutions or individual systems are concerned.

Table VI-a. The cost per pupil of instruction in elementary and in high schools in cities of different size, 1920. (a)

#### GROUP 1.

Elementary schools		High schools	
Seattle, Wash.	\$65.25	Detroit, Mich.	\$182.52
Cincinnati, Ohio.	61.06	Los Angeles, Calif.	165.54
Buffalo, N. Y.	59.48	Newark, N. J.	128.54
Los Angeles, Calif.	58.21	Philadelphia, Pa.	128.24
Minneapolis, Minn.	56.63	New York, N. Y.	117.95
Newark, N. J.	54.75	Chicago, Ill.	117.56
Cleveland, O.	54.60	Buffalo, N. Y.	111.80
New York, N. Y.	52.14	Cincinnati, O.	111.33
Chicago, Ill.	51.35	St. Louis, Mo.	110.21
Philadelphia, Pa.	50.89	Cleveland, O.	107.88
Indianapolis, Ind.	50.59	Indianapolis, Ind.	105.85
Washington, D. C.	49.96	Washington, D. C.	103.08
Kansas City, Mo.	49.33	Seattle, Wash.	101.08
San Francisco, Calif.	49.12	Pittsburgh, Pa.	96.12
Boston, Mass.	48.73	Boston, Mass.	94.90
St. Louis, Mo.	47.88	San Francisco, Calif.	89.17
Detroit, Mich.	47.47	Minneapolis, Minn.	88.11
Milwaukee, Wis.	47.21	Milwaukee, Wis.	84.71
Pittsburgh, Pa.	43.54	Baltimore, Md.	78.18
New Orleans, La.	38.04	Kansas City, Mo.	74.47
Baltimore, Md.	37.01	New Orleans, La.	73.91

#### GROUP 2.

Oakland, Calif.	\$67.61	Oakland, Calif.	\$137.54
Portland, Ore.	59.39	Trenton, N. J.	137.43
St. Paul, Minn.	59.32	Denver, Colo.	123.88
Worcester, Mass.	54.86	Worcester, Mass.	117.70
Grand Rapids, Mich.	54.65	Omaha, Nebr.	110.84
Toledo, O.	51.09	St. Paul, Minn.	110.41
Spokane, Wash.	50.35	Rochester, N. Y.	107.86
Omaha, Nebr.	50.22	Providence, R. I.	103.29
Denver, Colo.	47.46	Grand Rapids, Mich.	102.90
Salt Lake, Utah.	47.26	Toledo, O.	100.92
Rochester, N. Y.	46.47	Portland, Ore.	94.23
Trenton, N. J.	41.40	Des Moines, Ia.	92.46
San Antonio, Tex.	38.38	Spokane, Wash.	87.90
Providence, R. I.	36.81	Wilmington, Del.	84.84
Atlanta, Ga.	36.58	Salt Lake, Utah.	83.70
Louisville, Ky.	36.24	Louisville, Ky.	74.02
New Haven, Conn.	35.69	San Antonio, Tex.	73.64
Wilmington, Del.	35.58	Atlanta, Ga.	72.54
Reading, Pa.	33.18	Reading, Pa.	69.06
Nashville, Tenn.	23.83	New Haven, Conn.	53.65
		Nashville, Tenn.	52.70

(a) Data from original reports submitted to Bureau of Education for year 1919-20.





FIG. 8. Median cost per pupil of instruction  
in elementary and in high schools of 21 cities  
of each of three population groups, 1920.

Cities over \_\_\_\_\_ High  
300,000 \_\_\_\_\_ Elem.

100,000 \_\_\_\_\_ High  
to 300,000 \_\_\_\_\_ Elem.

30,000 \_\_\_\_\_ High  
to 100,000 \_\_\_\_\_ Elem.

\_\_\_\_\_

0            25            50            75            100          125

Fig. 5. School cost per pupil of instruction  
in elementary and in high schools of 31 cities  
of each of three population groups, 1900.

High \_\_\_\_\_ \$20,000  
\_\_\_\_\_ \$10,000

High \_\_\_\_\_ \$10,000  
\_\_\_\_\_ \$5,000

High \_\_\_\_\_ \$5,000  
\_\_\_\_\_ \$2,500

0 25 50 75 100 125

## SECTION IV

Division of The Cost of Education  
Between The State and The Student

In undertaking to indicate the proportion of the cost of educational training which is borne by the individual at the different school levels, it should be noted in the beginning that certain items of expense which are more or less generally paid by the individual cannot be taken into account. While the tendency in public education, very pronounced in schools of elementary grade and decreasingly so as the individual progresses to higher levels, is obviously in the direction of supplying at public expense more and more of the equipment and materials necessary for efficient instruction of the type for which the school is designed, it is yet a rare case in which the individual is not called upon to invest private sums in books, supplies, or paraphernalia required by the studies and activities of the schools. Methods and procedure in American schools of all grades foster the lavish use of these educational supplies and if the total amount so spent by individuals attending publicly supported schools could be determined and added to reported costs, the aggregate of expenditures on account of educational training as thus shown would doubtless be surprisingly greater than the figures usually cited as the cost of such training.

Disregarding expenditures of the type mentioned, available records are found to indicate certain payments by individuals in attendance in the different kinds of schools which are in effect an offset to the cost incurred by the public in maintaining these schools. There are, however, certain differences in the nature of the assessments imposed upon the individual by the different types of schools which should be defined if significance is to be attached to the ratio expressing the division of expense between the individual and the state.

In the first place, it may be noted that there is a clear distinction in intent and purpose of the provisions which are made for common school and for higher institutional training with full or partial public support. This distinction is evidenced in present administrative requirement and practice in two principal ways, first, in the legal basis of organization and maintenance of the two classes of schools, and second, in the relationship established by law between the individual and the school. Thus the common school system, now definitely recognized as including both elementary and high schools, is largely in the control of the local communities, which provide in general about 80% of the funds required. Higher institutions, on the other hand, are few in number, are supported by the state through legislative appropriations or specific levies upon the wealth of the state at large and control is vested in some type of body representative of the state. Thus the factors of location and extent of opportunities provided, as well as the educational requirements for admission, make these schools more accessible to certain groups of individuals than to others, and there is a higher degree of special privilege accruing to those who attend them. With reference to common school training, at least as regards elementary school instruction, the state assumes that provision must be made for all individuals for the promotion of the best interests of society, and claims the right within specified limitations to compel the individual to attend these schools. While this is not true to the same extent as regards the high schools, the tendency





is quite clearly in the direction of increasing the amount of school training or of increasing the age limit beyond which the individual may follow his own inclination with reference to further school attendance.

From the foregoing it is apparent that American educational policy cannot consistently impose upon the individual the same obligation to share the burden of expense of training in the two situations described. Whatever portion of the cost that is shown to be borne by the individual in any specific case will be significant, therefore, only in relation to the conditions under which the payment is made.

The most obvious difference in administrative practice with reference to tuition or other fees for educational service in the common schools as contrasted with higher institutions is that in the former no charges for tuition are made in the case of individuals residing within the district by which the schools are supported. There are special fees, such as laboratory fees and charges for specialized instruction in such lines as music and art, which the resident student is occasionally required to pay, but a general charge for tuition in elementary and high schools is made only against those who live in districts which do not contribute to the support of the particular schools in question. Higher institutions, on the other hand, almost universally require the payment of a general tuition fee by both resident and non-resident students, the fee for non-residents usually being somewhat higher. The implication of this difference with respect to tuition charges in the two types of publicly supported schools seems to be that higher educational training for the individual is not to the same extent a valid charge against the state. This attitude is even more clearly expressed in the provision now quite commonly made for the payment of tuition charges for instruction of non-resident pupils in elementary and high schools out of public funds derived from a tax upon the district within which such pupils reside.

In the reports of the state school systems, revenues for school purposes are usually detailed according to sources, the proportion derived from each principal source being specified. The recent summaries of state reports issued by the United States Bureau of Education do not make a separate classification of the receipts of common schools from tuition fees, an indication of the relative unimportance of fees as a source of revenue for such schools. Individual state reports show that only a small percentage of the cost of the common schools is met by tuition charges. Even so, it is not always clear that the amount reported as collected in fees represents the share of the costs assumed by individuals themselves for whose instruction a non-resident fee is charged. As has been pointed out, provision is usually made for the payment of tuition of elementary and high school students by the school districts within which they reside. Such provision is usually found where the district does not itself afford the educational opportunities required, and at times when it is obviously inconvenient to attend school within the resident district. These two classes probably include the great majority of public school pupils on whose account any non-resident fees are paid. In the 1920 report for Illinois, a report in which the amount received from other school districts in payment of tuition fees is clearly indicated, the amount reported as paid by individuals for fees is less than four-tenths of one per cent. of the net receipts of district funds, and less than one-fourth the amount collected from other districts. The portion of the total of \$356,000 paid by individuals which was charged for high school as distinguished from





elementary school instruction is not indicated.

Besides the fact that a very small percentage of the expense of elementary and high school education is actually paid by the individual, it may be noted that it is the obvious intention of the state to provide such instruction for all residents of school age without charge. Such amount as is paid by the pupils themselves, may perhaps be best regarded as an assessment designed to protect the district against encroachment rather than as a fee exacted of the individual for the educational service rendered. From the point of view, then, of an intentional division of expense between the individual and the state, insofar as such division implies a recognition of any individual responsibility for meeting the cost of the training afforded by elementary and high schools, it can hardly be said that the individual bears any portion of the cost of public school training on this level.

In the case of higher institutions which are in large part supported by public funds, the amount collected from students in the form of fees is more validly a measure of the division of the cost of education between the state and the individual. In addition to the fact that the fees for educational service in these institutions are looked upon as a source of revenue, and the tendency is apparently in the direction of increasing the amount so derived, tuition in higher schools may be regarded as a charge against the individuals in attendance at such schools because of the special advantages these individuals enjoy. It is true that some of the state universities and colleges have opened their doors to resident students at mere nominal rates of charge, an indication of the fact that a somewhat general impression has prevailed that there should be no limit to the opportunities for educational training in this country except such as are set by the individual's own native ability or ambition. But most state institutions, including many of the normal schools, now have a fee schedule which represents a specific charge for the kind of service the school renders. However, the amount charged by schools of different states, by different schools of the same state, and even in the different departments of the same school is so various that it is evident there is in general no clearly defined basis of charge for the training offered.

In consideration of the many different types of work done by state supported schools of higher grade, the most significant index of the division of expense between the individual and the state would probably be the proportionate part of the actual cost of the particular course taken that is paid by the individual. Such a comparison should apparently be readily set up by means of unit cost studies in different types of schools and courses and the corresponding tuition charges, but there are certain pronounced difficulties in the way of any such analysis.

In the first place, the suggested comparison implies that the amount charged as a fee for instruction in a given school or department is in some definite manner related to the cost of providing this instruction. An analysis of the rates of tuition in a representative group of state institutions reveals no such relationship generally obtaining either as between different schools or different departments of the same school. It is somewhat difficult to compare fees between different institutions because of the lack of uniformity in reporting tuition rates, certain special fees or assessments such as laboratory, diploma, athletic, or club fees, being included with tuition in some schools and in other cases reported separately. However, a reliable basis of comparison is found in tables appearing in the report of





the proceedings of the Eleventh Annual Meeting of the Association of University and College Business Officers, May, 1921. After eliminating fees for graduate study, summer sessions, matriculation, and all special and deposit fees, the report of fees for the year 1920-21 shows a variation in tuition for resident students in the liberal arts courses of fifteen state colleges and universities of from \$20 to \$90; in the law schools of fourteen of these institutions, the tuition ranges from \$24 to \$105 for resident students; in medicine, the range for fourteen schools is from \$24 to \$155; in engineering, twelve schools show a range of from \$20 to \$95; while the seven schools offering agriculture report fees of from \$20 to \$90. While it is doubtless true that the actual cost of instruction in any one of these departments varies somewhat between different institutions, this can scarcely be taken as the explanation of the differences noted.

There is the same lack of uniformity in the schedule of fees for the different departments of the separate institutions. While one western state University charges a fee of \$30 for resident students in liberal arts, law, medicine, engineering, and pharmacy, the university of a central state charges \$45 for each of these courses excepting pharmacy which is not offered, and a north central university offering agriculture and dentistry in addition to all those mentioned specifies a different charge for each course offered, the fees ranging from \$42 to \$180. These fee schedules for 1920-21 are shown for the fifteen state institutions in Table VII.

From these exhibits it is obvious that no consistent basis can be found for the fee schedules in effect in state supported schools, hence a comparison of fees and unit costs by courses could have no particular significance for a representative group of institutions.

Besides the variations noted with regard to fee schedules, there are other difficulties involved in determining the actual cost of the different departments of a given institution as a basis of determination of the share of instructional expense which is borne by the individual. Such computation requires the distribution of operating and overhead expenses to the different departments, which distribution can be made only on the basis of detailed information with regard to the school plant and administrative practices, as well as of expenditures. While a number of such studies have been made on the basis of actual records, there are such differences in procedure and such disagreement as to fundamental principles of accounting among them that the results of different studies cannot be regarded as comparable.

Yet another difficulty in the way of a comparison of unit costs and individual fees arises from the fact that exceptions are made to specified rates of tuition in practically all state higher institutions. Allowances are made for student service, scholastic attainment, previous military service, etc. Besides, there are in certain state institutions a number of political scholarships exempting the appointee from payment of part or all of the normally assessed fees. Per capita costs based upon enrollment or attendance, or upon the number of student-hours of instructional service given in different departments would involve all students, including those who do not pay the regular tuition rate. The ratio of tuition fee to per capita cost would be affected, then, by the policy of a given institution with reference to such exemptions, as well as by the distribution among the different departments of the students to whom allowances are made.



Table VII. Comparative Fee Schedule of Fifteen State Institutions

1920-21

Institu- tions	Lib.Arts		Law		Medicine		Engineer		Dentistry		Pharmacy		Agr.	
	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R
A	72	84	66	66	150	150	60	60	( 99 99 180 180		54 54		42 84	
B	30	80	60	110	150	200	30	80	(100 150 150 200		30 80		30 80	
C	24	148	24	148	24	148	24	148					24	148
D	30	30	30	30	(120 120 155 155		30	30	(120 120 150 150		60 60 95 95		30	30
E	55	55	75	100	150	175	55	55	(165 190 175 220		75 75			
F	(80 105 76 101		105 125 101 121		140 165 136 161		95 120 91 116		140 175 136 171		95 120 91 116			
G	44	55	45	55	45	55	45	55						
H	90	90											90	90
I	34	34	49	49			39	39					34	34
J	20	30	34	45	34	45	20	30			34 45			
K	20	50	70	100	95	125	20	50			75 100			
L	20	35					20	25					20	25
M	30	30	30	30	30	30	30	30			30 30			
N	50	85	65	100	(125 125 150 150									
O	45	90	60	90	120	150								

\* Graduate School, Summer Session, Matriculaion, Special and Deposit Fees are not included.

Note: The letter "R" at the head of the left hand columns designates Resident Students. "N-R" designates non-Resident Students. Bracketed figures indicate different rate for freshman and sophomore students





Table VII-a. Comparative Fee Schedule of Fifteen  
State Institutions

1921-22

	Lib.Arts		Law		Medicine		Engineer		Dentistry		Pharmacy		Agri.	
	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R	R	N-R
A	60	90	90	120	180	210	90	120	180	210	90	120	60	90
B	40	140	60	160	150	250	30	130	(100 150 150 250		30	130	30	130
C	24	148	24	148	24	148	24	148					24	148
D	50	50	50	50	(120 120 155 155		50	50	120	120	60 60 95 95		50	50
E	55	55	75	100	150	175	55	55	(165 190 175 200		75 75			
F	(80 105 76 101		105 125 101 121		140 200 136 196		95 120 91 116		140 200 136 196		95 120 91 116			
G	75	85	75	85	75	85	75	85					75	85
H	90	90											90	90
I	34	34	49	49			39	39					34	34
J	20	30	(35 45 100 100		35 45		20	30			35 45			
K	25	50					25	50					25	50
L	25	50	75	100	95	125	25	50			75 100			
M	45	150	45	150	45	150	45	150			45 150			
N	50	85	65	100	150	150								
O	45	90	60	90	120	150								



Table VIII. Percentage of total income derived from each of principal sources in 1920.

	student fees	public funds	product funds	private funds	other sources
Universities	11.3	64.7	5.6	5.2	13.2
technical schools	5.9	58.2	4.1	19.4	12.4
colleges (a)	7.9	75.8	2.1	8.9	5.3
all schools	9.5	62.8	4.9	9.9	12.9

Apparently the only measure of the division of the cost of higher training between the individual and the state is to be found in the ratio of total receipts from fees for educational services to the expenditures by the state in support of such training. Table VIII shows the proportionate part of total funds exclusive of receipts for permanent endowment and from fees for non-educational services, such as board and room rent, which was derived from each of the principal sources by state supported universities, colleges, and technical schools in 1920.

The percentages shown in Table VIII. indicate the relative importance of student fees and appropriations from public funds in contributing to the total income of the types of state schools specified. Considered from this point of view, it is noted that the three classes of schools taken together receive approximately six and one half times as large a share of their total income from public funds as is received from fees for educational services. Regarding the three classes of schools separately, it is observed that the colleges receive the largest percentage of total income from public funds, universities the largest percentage from student fees, while technical schools receive a smaller percentage of total income from each of these two sources than either the colleges or the universities. These variations, however, are obviously influenced by differences in the relative importance of other sources of revenue for the three types of schools. For example, the strikingly large percentage of total income which came through private contributions in the case of the technical schools serves to reduce the percentages shown for this group as derived from fees and public funds in comparison with the other types of schools.

If all other sources of income are disregarded, it is found that the ratio of the total derived from student fees to the total received from public funds for the same groups of schools is approximately one to six in the case of the universities, and one to ten in the technical schools and the colleges. Considering the totals for the three classes of schools together, the receipts from public funds amount to 6.8 times as much as is derived from student fees. Reduced to percentages, the summaries show that student fees constitute 12.9 per cent. of the total income of the three groups of schools from such fees and public funds together. For the universities alone this percentage is 14.9, for technical schools it is 9.2, and for the colleges 9.5.

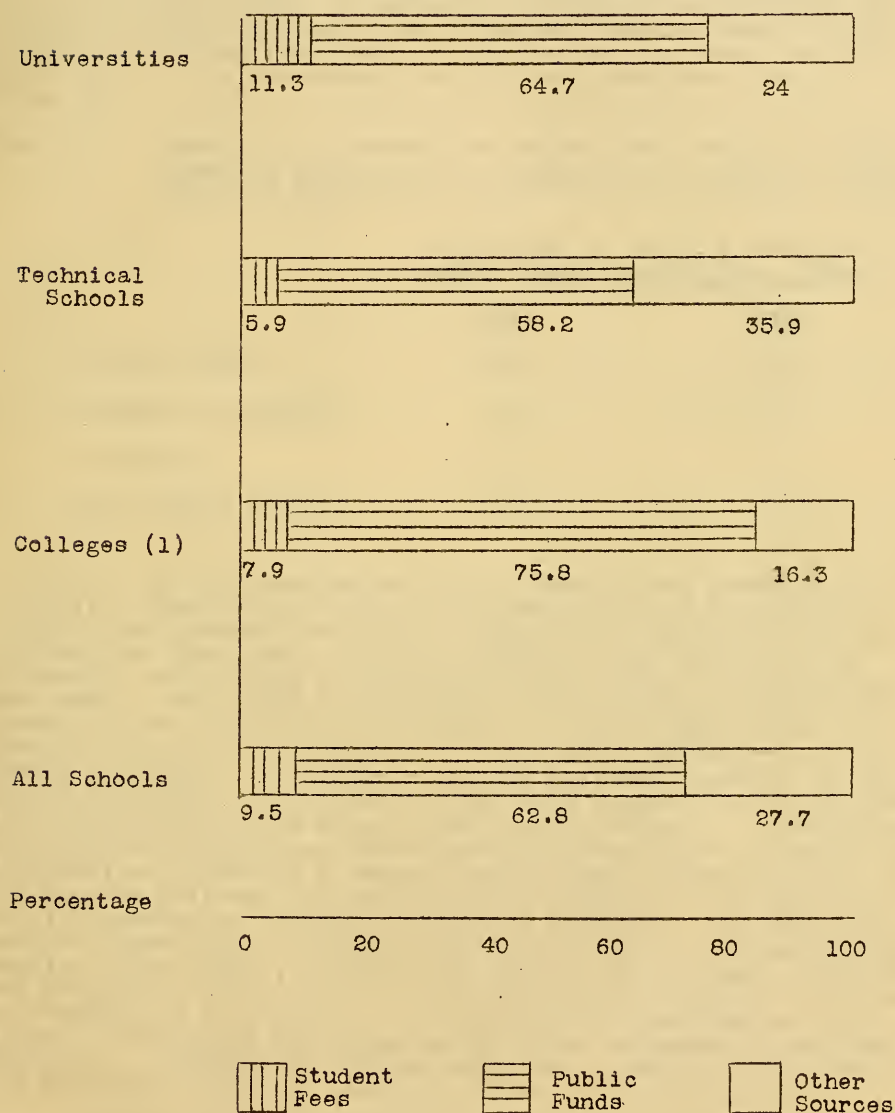
Some indication of the tendency with reference to the division of expense of higher educational training between the state and the individual may be determined by reference to similar percentages based upon reports for a similar list of schools for 1918. Employing the same classification and including all schools

(a) Excluding teachers' colleges formerly in normal school group.





FIG. 9. Percentage of total income of universities, technical schools, and colleges derived from student fees and from public funds in 1919-20.

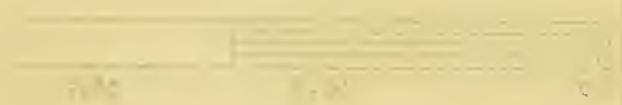


(1) Excluding teachers' colleges formerly in normal school group .

(1) The purpose of this study is to determine the effect of the concentration of the solution on the rate of the reaction. The results are shown in the table below.



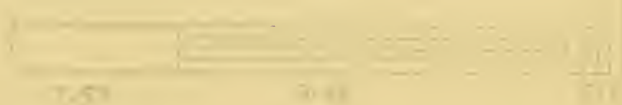
Experiment 1



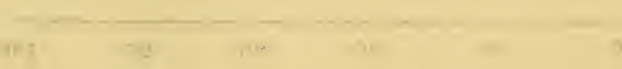
Experiment 2



Experiment 3



Experiment 4



Experiment 5



of the three types listed as state institutions in 1918, it is found that student fees constitute 11.8 per cent. of the total income from both student fees and public funds in the case of the university group, 8 per cent. for the technical group, and 13.7 per cent. for the colleges. Within a period of two years, then, it is seen that there was a decided increase in the percentage derived from fees in the case of the university group, a smaller increase for the technical schools, and a considerable decrease in the case of the college group. This change with reference to the percentage derived from fees by the colleges is in part explained by the increase in the number of the schools included in this classification in 1920 over the number reported in 1918. Since the total number of colleges supported by state funds is relatively small, the addition of two new schools, one of which reported no income from fees, was sufficient to change the ratio materially. The percentages for the two years are shown in Table IX.

Table IX. Relation of income from student fees and from public funds in universities, colleges, and technical schools, 1918 and 1920.

	<u>percentage of total of fees and public funds derived from fees</u>	
	<u>1918</u>	<u>1920</u>
universities	11.8	14.9
technical schools	8.0	9.2
colleges	13.7	9.5
all higher schools	10.7	12.9

The explanation of the increase in the percentage derived from fees by the universities and technical schools is found in the general tendency to increase the tuition rates during the past few years. In the report of the Association of University and College Business Officers to which reference has been made, comparative fee schedules for 1920-21 and 1921-22 are presented for a representative group of state institutions, as shown in Tables VII and VII-a. Of 15 such institutions, 6 reported an advance in tuition rates for resident students in liberal arts courses, the amount of increase ranging from 25 per cent. in two institutions to 67 per cent. in two others. In technical and professional courses corresponding increases are shown, 4 institutions reporting a constant percentage increase in rate in all courses offered, one indicating an increase of 67 per cent. in all departments excepting medicine, dentistry, and pharmacy, another reporting a different rate of increase in all courses excepting liberal arts, in which the tuition for resident students was reduced by 20 per cent. One institution, however, reported an increase of 33 per cent. in tuition of resident students in liberal arts, while the rates in all other departments remained unchanged. Seven institutions reported no change in the fees of any department from the rates in effect the preceding year.

The fees for non-resident students are in general somewhat higher than for resident students in all departments. Only two of the universities in this group report the same tuition rates in 1921-22 for both classes of students in all departments, and one of these has announced a new schedule for 1922-23 in which





higher rates are specified for non-resident students.

There is, however, nothing approaching uniformity in the degree of difference shown in fees prescribed for the resident and non-resident groups. In one university the fee for resident students is \$24 in all departments, while the rate for non-resident students is uniformly \$148. In another, the fee is the same for both groups in liberal arts, engineering, and pharmacy, and \$25 higher for non-resident students in law, medicine, and dentistry. In a third institution of the same class, the rate is uniformly \$75 for resident students and \$85 for non-residents, while another charges \$25 more for non-residents in liberal arts, engineering, and pharmacy, \$20 more for law, and \$60 more in medicine and dentistry.

Apparently one principal consideration in determining the difference in charge to non-resident students is the question of whether or not it is desired to attract such students to the school. Here there seems to be a various policy both as between different institutions and with respect to different departments of the same institution. Obviously the institution which charges non-residents a rate uniformly six times the amount charged resident students is not seeking to increase its enrollment by attracting students from other states, whereas a uniform fee for all students probably indicates that such increase is desired. A material difference in the excess of charge to non-residents among the different departments of the same institution may indicate merely the desire to restrict the enrollment in the more crowded departments, or may express the attitude of different administrative groups with reference to non-resident students.

The significance of these different tuition rates so far as the special problem of this study is concerned lies in the fact that the total receipts from tuition fees as generally reported do not distinguish the amount received from resident students alone. Enrollment figures for the different departments are reported but these records do not indicate the distribution of non-resident students, hence no estimate can be given of the probable ratio of receipts from fees for resident students to the total amount of fees paid. The percentages indicating the relation of state support to individual payment for the educational training received are based upon the total receipts reported from fees for both resident and non-resident students. This percentage in 1920 was shown to be 14.9, 9.2, and 9.5 for the university, technical, and college groups, respectively. In as much as there is a discriminating charge in the case of certain groups of students on account of place of residence, the percentages stated do not indicate precisely the portion of the cost of advanced training which the state proposes to pay for the resident individual, assuming that tuition rates may be regarded as an evidence of such intention. The number of non-resident students in state institutions is relatively small, however, and deductions on account of fees paid by these students would likely change the above percentages only slightly for any of the groups of schools considered.

Some caution should probably be observed in regard to any inferences that may be drawn from the percentages indicating the relative amount of the expense which is borne by the state in the different classes of schools. There are a number of different factors affecting the percentages as computed and it is doubtful



if the difference shown for the university and technical groups, for example, signifies any conscious difference in policy with respect to public support, although there might be some significant difference in the matter of requirements as regards the two types of institutions. The ratios are significant, however, as indicating a somewhat definite limitation upon the extent to which the individual is expected to share with the state the cost of advanced training in liberal or vocational courses.





## SECTION V

Division of the Cost of Education Between  
the State and the Student in England,  
Germany, France, and Canada.

In considering the practice of other countries with respect to the extent to which educational opportunities are provided at public expense, it is recognized that direct comparisons cannot generally be drawn between the various units of these school systems and the different types of publicly supported schools in the United States. While it is clear that no other system of public education contemplates even an approach to the unrestricted opportunity for higher educational training afforded the youth of this country, the mere statement of difference in the relative cost of such training to the individual and the state in this and other countries may not in itself represent the degree of difference in public support of schools. Besides the limitations set by social practice, there are organic differences in the institutions of higher learning of the United States and those of other countries that make the factor of costs to the student in the two situations quite incomparable. The same is true in the case of secondary schools as well in the European countries here considered. The statistics for foreign systems are presented for the light they throw upon the general educational aims and practices of these countries, rather than as a basis for specific comparison as to the extent of public support of corresponding divisions of the American system.

It is apparently the purpose of each of these foreign countries to see that no individual is denied the privilege of elementary educational training. It is understood, however, that the state does not necessarily have to provide school accommodations for all individuals of elementary school age. The social and religious ideals that have influenced educational practice for generations, and in certain aspects even for centuries, effect a segregation of particular classes of individuals for whose instruction either the family or the church assumes more or less responsibility. For example, two-fifths of all the pupils enrolled in the ordinary public elementary schools of England in 1914 were attending schools which were established by some voluntary agency, though the expense of maintenance was borne by the public. (a) While reports from France and Germany for the years immediately preceding the outbreak of the war show a considerably larger percentage of pupils enrolled in the more distinctly public schools, practically all children who were expected to progress beyond the equivalent of the American elementary school curriculum were enrolled in schools in which all or a significant part of the expense is borne by the individual. In Canada, the situation with regard to elementary education is in general like that of the United States. The elementary schools are free to all classes and supported entirely by public funds, except in the province of Quebec. Private elementary schools enroll but few pupils in any of the provinces.

So far as the elementary grades of instruction are concerned, it may be said that such training is practically free for

- (a) Peter Sandiford, Comparative Education. London: J. M. Dent & Sons, 1918. P. 203.



the masses of people in all the countries here considered. Even in England, where prior to the passage of the Education Act of 1918 local boards of education were permitted to charge fees for instruction in the ordinary schools of elementary grade, the rate was small in those districts in which any charge was made and the amount of money generally derived from this source was negligible. According to a recent general statistical report, (a) the amount expended in support of elementary education in 1914 was 26 million pounds. Of this amount 1.7 per cent. was derived from such sources as minor appropriations of local authorities, fees and the sale of books and other articles, endowments, etc., more than 98 per cent. being derived from parliamentary grants and local taxation. While the total amount derived from fees for instruction alone is not reported, fees and receipts from the sale of books and other articles in 1913 constituted only about 0.7 per cent. of the total amount available for the support of public elementary schools. In the other countries there are no fees for instruction in the common schools of elementary grade.

This does not mean, however, that all individuals in these countries have the opportunity to secure free elementary school instruction. It is true in the case of Canada where the public elementary schools lead directly to the higher schools. In Germany and France, and in somewhat less degree in England, all students who expect to progress to higher educational institutions are required to enter a school which prepares for such instruction at least by the age of nine years. These are known as secondary schools, but provide elementary instruction as well for the younger pupils. While in each of these countries there are numerous subventions and scholarships, the majority of the pupils pay tuition fees, and the income from this source is an important factor in the support of the schools.

In Canada, where the secondary schools closely resemble the public high schools of the United States, secondary education is inexpensive. In Nova Scotia and New Brunswick the high schools are practically free, while the fees charged in other provinces are small. For example, the average fee in the high schools of Ontario is less than \$4.50 per year. (b)

While the secondary schools of England, France, and Germany are not in all respects similarly administered, they are alike in that they are designed to provide training for those who are destined to enjoy the advantages of higher education, include both elementary and secondary courses of instruction, and are only partially supported by public funds. In England about ten per cent. of the income of the secondary schools, not including private institutions, has for some years been derived from student fees. Parliamentary grants and rates (property taxes) provide about 80 per cent. of the total. (c)

In 1914 Germany spent the equivalent of about 19 million dollars in support of secondary schools. Of this amount, 39 per cent. was derived from fees and 56 per cent. from state and local sources. (d) There are several types of secondary schools in Germany, the course running from six to nine years, and the fees vary in the different types of schools, as well as in the higher and lower grades. There is also an intermediate

- (a) Statistical Abstract for the United Kingdom, 1919. P. 398.
- (b) Sandiford, op. cit. P. 411.
- (c) *ibid.* P. 274.
- (d) *ibid.* P. 148-9.





school which is more closely connected with the elementary school system and is in many instances maintained by communities which cannot maintain secondary schools. The fee that may be charged is limited, however, to not more than half the amount charged in the secondary schools. They are relatively few in number, enrolling only about three per cent. of the pupils in 1911, and are generally inexpensive so far as cost to the individual is concerned.

The secondary schools of France serve the double purpose of providing a liberal education, and of preparing the student for entrance into the universities, the engineering schools, and the normal schools. The baccalaureate degree is granted for completion of the secondary school course. This degree admits the graduate to the government military and naval academies and makes him eligible to appointment to certain desirable positions in the post office and the interior departments. Fees in these schools vary according to the district, the age of the pupil, and the extent to which he is under the care of the instructors. Charges are higher in schools located in the cities. The cost is likewise greater for students who board at the schools all or part time, and for those who study under the immediate direction of the instructors. In general, the family bears about 52 per cent. (a) of the total cost of maintenance, not including the cost of buildings which are expensive and are paid for by the state. Other expenses are met by the state and its subdivisions.

The institutions of higher learning in the countries here considered likewise present a variety of administrative aspects when considered from the point of view of the cost of education on this level. Thus in the French universities there are no fees for instruction as such. However, the statement that higher instruction is free to the student is misleading in view of the fact that numerous fees for other privileges and services are exacted of all students. These include fees for matriculation, registration, library and laboratory privilege, examination, and diploma, the aggregate in the pre-war period being about 205 francs per year. The fees are assessed by the universities rather than by the state, and receipts therefrom are expended principally for library and laboratory equipment and for publications, the university depending upon the state to supply nearly all funds required for instruction, general equipment, and scholarships. About half the cost of construction of university buildings has been contributed by the towns in which the institutions are located, the state providing the balance.

All of the British institutions for higher training receive contributions from public funds, the leading universities which are in part supported by contributions from their incorporated colleges receiving the least support from public sources. Reports for Oxford, Cambridge, and Durham show that in 1912 the receipts from fees constituted 32 per cent. of the total expenditures of the three universities, while only about 15 per cent. of the funds came from local, parliamentary, and treasury grants. The six provincial universities, on the other hand, received (1913) a little more than half the amount of their total expenditures from local and parliamentary grants, and only about 25 per cent. from student fees. The University of London and its colleges collected in the same year 48 per cent. of its funds in student fees, and was supported by local and parliamentary grants to the extent of one-third the amount of its necessary expenditures. Reports of four independent university colleges, - that is,

(a) Sandiford op. cit. P. 303.



colleges that are not incorporated within one of the greater universities-show receipts from local and parliamentary grants in 1913 amounting to 74 per cent. of their expenditures, fees supplying 26 per cent.

Rather liberal support is given also to the agricultural and technical colleges. Reports from twelve of these schools in 1913 indicated receipts from local and parliamentary grants amounting to 60 per cent. of the costs for the year. Approximately 28 per cent. of their funds came from student fees.

The relative amounts contributed to the total income of each of the principal types of higher institutions of England and Scotland by fees and by appropriations from public funds are shown in Table X. The data for Oxford, Cambridge, and Durham are for the year 1912. Those for the other institutions relate to the year 1913.

Table X. Percentage of total income of English and Scotch universities and colleges derived from fees and from appropriations of public funds. (a)

institutions	percentage of income	
	<u>fees</u>	<u>pub. funds</u>
Oxford, Cambridge, and Durham	32	15
University of London	48	33
Provincial universities	25	52
Independent university colleges	26	74
Agricultural and technical colleges	28	60
Scotch universities	29	40

All of the higher institutions with the exception of the independent university colleges have other sources of income besides fees and grants. The larger universities receive considerable contributions from their incorporated colleges, in addition to the income from endowments, which are large as compared with those of most other European universities.

The Scotch universities receive about the same public support as is given the provincial universities in England, five of these institutions reporting receipts from local, parliamentary, and treasury grants in 1913 amounting to 40 per cent. of the expenditures. Student fees were in that year approximately 30 per cent. of the expenditures.

Canadian universities have in recent years received about one-third of their income from public funds. Reports for

(a) Data from U. S. Bureau of Education Bulletin No. 16, 1917. Studies in Higher Education in England and Scotland.





14 institutions in 1918 (a) and 13 institutions in 1920 (b) show that while their income had almost doubled, the proportion of the total which was derived from Government and municipal grants was in each case approximately 33 per cent. The percentage of income derived from fees declined in the two years from 22½ per cent to 19 per cent. Reports (c) for seven colleges receiving public support in 1920 show receipts of slightly less than 33 per cent. from government and municipal grants, while the income from fees was approximately 25 per cent of the expenditures.

The industrial and technical schools of Canada, as in the case of England, are somewhat more generously supported. In the province of Ontario, where these schools are most highly developed, the legislative and municipal grants constituted sixty-five per cent of the total income in 1920 (d) Student fees, on the other hand, amounted to less than 5 per cent of the total cost of maintenance. It should be noted, however, that much of the work of these institutions is of secondary rather than of university grade. This fact probably accounts for the relatively low percentage of income derived from fees.

The universities of Germany are under state control and are in general rather liberally supported by the state. Since 1870 the state has paid not less than two-thirds of the total cost of maintenance of the principal universities, and by 1908 the proportion of state funds had increased to three-fourths of the total income. The latest report giving details of expenditures for the German universities shows that the University of Berlin in 1912 received 83 per cent of its reported expenditures from state funds (e). The other universities were probably not so liberally supported, but received the greater portion of their income from the state. As these universities have little permanent endowment the actual payments of students approximate a fourth of the costs of maintenance in most of the German institutions,

- (a) Imperial Year Book for Canada, 1917-18. P.391
- (b) The Canada Year Book, 1920. pp. 156-7
- (c) ibid. Pp. 162-3.
- (d) Report of the Director of Technical Education for Canada, 1920.
- (e) Report, United States Commissioner of Education, 1913. Vol.1, P. 823.

It is interesting to note that in 1945 the total expenditure on research and development in the United States was \$1,000,000,000, or 1.5% of the national income. This figure was based on the basis of the total expenditure on research and development in the United States in 1945, which was \$1,000,000,000, or 1.5% of the national income. The total expenditure on research and development in the United States in 1945 was \$1,000,000,000, or 1.5% of the national income. The total expenditure on research and development in the United States in 1945 was \$1,000,000,000, or 1.5% of the national income.

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- (a) Report of the Committee on Research and Development, 1945-1946, p. 10.
- (b) Report of the Committee on Research and Development, 1945-1946, p. 10.
- (c) Report of the Committee on Research and Development, 1945-1946, p. 10.
- (d) Report of the Committee on Research and Development, 1945-1946, p. 10.
- (e) Report of the Committee on Research and Development, 1945-1946, p. 10.

## SECTION VI

Public Support of Education  
in Illinois and Other States.

There are in general only a few types of higher educational institutions receiving their principal revenues from public sources. Of these, only the normal schools are numerous enough in a given state to be treated as a group. A comparison of the division of expense for educational training between the state and the individual in different states, if elementary and high schools are regarded as supported entirely by public funds, is in effect merely a comparison of individual institutions in this respect so far as universities, colleges, and technical schools are concerned. Since the particular interest here is such a comparison between Illinois and other states presenting a similar situation, there is only one type of higher institution besides the normal school which is involved, namely, the university. According to reports submitted to the United States Bureau of Education the university and normal schools are the only institutions of higher grade in Illinois that are supported by public funds.

In 22 of the states, the agricultural and mechanical college, originally endowed by federal land grants and receiving annual appropriations from federal funds for current expenses, is maintained as a department of the university instead of as a separate institution. This is the case with Illinois. Since the types of courses offered have much to do with the cost of maintaining the institution, and since the amount paid by the individual usually varies with different courses as well as between different institutions, specific comparisons with respect to the proportionate part of the cost which is borne by the individual should probably be made only with other state universities that are similarly organized.

Since the size of the institution and the number of different courses offered obviously have their influence on costs of maintenance and general overhead, these factors have also been considered in selecting the institutions for which comparisons are to be made. According to reports for 1920, eight of the twenty-two state universities with which the agricultural and mechanical college is combined enrolled more than 3000 students. Of these, Cornell, in reality a private school but listed as a state institution because of state and federal support, receives relatively larger percentages of its total income from permanent endowment and private contributions than do other universities. The appropriations from public funds are doubtless much less than would be required by any such institution lacking the endowment and private support which this institution enjoys. Receipts from tuitions, on the other hand are more in accord with the total working income of the university. It is therefore clearly not comparable to the other universities of this group with respect to the relation of tuition receipts to the aggregate of funds derived from public sources, and is not included in the comparisons which are to be shown.

The institutions selected are also similarly organized with regard to the number and kinds of courses offered. The most expensive courses in such institutions are the technical and professional courses. Of the schools considered none has less than four professional and eight technical courses. The largest number of courses in these two groups listed by any one institution is 19, and the smallest number is 13. All have the usual offerings in





fine arts and academic work, hence there are no differences in curricula that would invalidate the comparisons desired.

TABLE XI. Total amount received from specified sources of revenue by seven state universities in 1920. (a)

Univer- sity	total receipts from					total
	student fees	public funds	product. funds	private funds	miscel. sources	
California	594211	2841936	368821	943326	1096170	5844464
Illinois	353684	3152576	32451	35400	342138	3916249
Minnesota	501420	3140661	109883	89371	567101	4408436
Missouri	180806	1175547	94662	41011	243924	1726950
Nebraska	155009	1695650	56998		488199	2395856
Ohio	223723	2070933	62355	2065	263948	2622924
Wisconsin	716360	2135424	41533	80228	510095	3483640

The seven state universities on which comparisons are based are shown in Table XI together with facts concerning enrollment and revenues. The percentage of income derived from each of the principal sources is shown in Table XII.

While the percentages given in Table XII indicate a somewhat definite tendency in these institutions with regard to the contribution which each of the principal sources of revenue makes in support of the institution, some marked variations are noted. California received much larger sums from private benefactions and productive funds than any of the other institutions, about twenty-two and one half percent of the total income being derived from these sources. Illinois, at the other extreme, received less than two percent from these two sources. The result of the different conditions noted with reference to these two institutions is readily apparent in the percentage of total income which each received from public funds. These factors should therefore be noted in making comparisons between institutions with regard to the students' share of the expense incurred.

TABLE XII. Enrollment and percentage of total receipts derived from specified sources for seven state universities in 1920.

	enroll- ment(b)	percent of total income from				
		student fees	public funds	product. funds	private funds	miscel. sources
California	12630	10.17	48.59	6.32	16.15	18.77
Illinois	7935	9.03	80.48	0.82	0.89	8.78
Minnesota	12182	11.36	71.20	2.47	2.02	12.95
Missouri	4678	10.46	67.63	5.47	2.41	14.03
Nebraska	5759	6.48	70.71	2.38	.00	20.43
Ohio	7151	8.55	79.01	2.39	.78	9.27
Wisconsin	7294	20.58	61.35	1.18	2.50	14.59
median percentage		10.17	70.71	2.39	2.02	14.03

- (a) From data presented in Bureau of Education Bulletin No.48, 1920.  
 (b) Excluding summer session.

These data are available in the form of a table in the appendix to the report.

TABLE 1. Total number of people in the United States in 1950, by sex and age group.

Age Group	Male	Female	Total
Under 15	30,000,000	30,000,000	60,000,000
15-24	20,000,000	20,000,000	40,000,000
25-34	15,000,000	15,000,000	30,000,000
35-44	10,000,000	10,000,000	20,000,000
45-54	8,000,000	8,000,000	16,000,000
55-64	6,000,000	6,000,000	12,000,000
65-74	4,000,000	4,000,000	8,000,000
75-84	2,000,000	2,000,000	4,000,000
85 and over	1,000,000	1,000,000	2,000,000
Total	90,000,000	90,000,000	180,000,000

The above table is based on the 1950 Census of the United States. The figures are in thousands.

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TABLE 2. Total number of people in the United States in 1950, by sex and age group.

Age Group	Male	Female	Total
Under 15	30,000,000	30,000,000	60,000,000
15-24	20,000,000	20,000,000	40,000,000
25-34	15,000,000	15,000,000	30,000,000
35-44	10,000,000	10,000,000	20,000,000
45-54	8,000,000	8,000,000	16,000,000
55-64	6,000,000	6,000,000	12,000,000
65-74	4,000,000	4,000,000	8,000,000
75-84	2,000,000	2,000,000	4,000,000
85 and over	1,000,000	1,000,000	2,000,000
Total	90,000,000	90,000,000	180,000,000

(1) Total number of people in the United States in 1950, by sex and age group.

The extent of the variation in the relative amount of the cost of training in these institutions which the individual pays in the different states is, however, not to be overlooked. So far as general recognition is concerned, every institution in the list is regarded as affording opportunities of a superior type for those interested in and prepared for advanced educational training. If the central tendency as indicated by the institutions here considered may be regarded as a normal assessment upon the individual, that is, if about ten percent of the total cost is a reasonable share for the individual to assume, some consideration should be given to the fact that students in one institution must pay twice that part of the total cost, while in another institution only a little more than half the normal rate is assessed.

If it is desired to compare somewhat more directly the relative share of the cost of higher education borne by the individual and by the state, the percentage of the amount derived from the two sources of fees and public funds alone may be noted. Table XIII presents these percentages for the same list of universities in 1920. Here it will be noted that the position of the several schools with reference to the percentage paid by the individual is changed slightly. California shows the second highest percentage in this comparison, the amount paid by students being 17.21 percent of the total derived from both student fees and public funds, while Table XII shows that student fees in this institution constituted 10.17 percent of the total income from all sources which is less than that shown for three of the other institutions. Minnesota records the second highest percentage when fees are compared with the total income, and is fourth in the list when fees and income from public sources alone are considered. Otherwise the institutions hold the same relative position in rank in the two comparisons.

TABLE XIII. Relation of amount paid in student fees to total derived from fees and public funds.

<u>State University</u>	<u>percent from student fees</u>
California	17.21
Illinois	10.09
Minnesota	13.07
Missouri	13.35
Nebraska	8.04
Ohio	9.76
Wisconsin	25.11

In the case of the normal schools, the selection of a comparable list involves a number of considerations. In the first place, there are three general types of normal schools that are supported by public funds, state schools, county or township schools, and city normal schools. The standards and curricula maintained by these different kinds of schools are by no means uniform. The city normal, for example, is maintained for the purpose of training teachers for the local public school system. It is operated as a part of the city system, and its expenditures are largely determined by internal administrative policy. The county or township normal seeks primarily to recruit rural school teachers, and is usually meagerly supported. The state schools constitute by far the most important group so far as investment in the country at large is concerned, expenditures for this group in 1918 being more than 90 percent of the total for all three groups. (a) They are supported in the main by legislative appropriations, and while they vary greatly among the different states with regard to entrance requirements, academic standards,







courses offered, salaries, fees, etc., the state normal in any given case represents a definite type of school for the state in which it is located. For these reasons the comparisons here drawn are between state schools only.

The last detailed report concerning normal schools was issued by the Bureau of Education in 1919 and relates to expenditures for the year 1918. Of 170 state normal schools reporting, it is shown that approximately 90 percent of the income was derived from public funds. One hundred forty two of these schools reported tuition fees amounting to about  $7\frac{1}{2}$  percent of the amount received from public appropriations. This percentage is by no means a constant one even among states having a relatively similar group of normal schools, as will be indicated by the data for the seven states given below.

As has been suggested, these schools have no sources of income apart from fees and public appropriations that are of material aid in maintaining the schools. There are a very few exceptions, where an endowment fund exists. Many of these schools, moreover, do not charge tuition fees at all. On the other hand, many of them maintain student dormitories, and the earnings from these may be used in defraying school expenses. In order to avoid the effect of selection of different types of institutions, the receipts of all schools charging tuition were analyzed and fees for services other than educational services were deducted, and a comparison made between only the receipts from fees and those from public funds. Table XIV shows the number of schools included in the report for each of the states selected, and the percentage that the receipts from fees for educational services constituted of the total amount derived from both fees and public funds.

TABLE XIV. Relation of amount paid in student fees to total derived from both fees and public funds by the normal schools of seven states.  
(a)

	<u>number of schools</u>	<u>percent from student fees</u>
Illinois	5	4.77
Kansas	3	11.15
Massachusetts	8	.46
Michigan	4	8.16
Missouri	5	23.66
Texas	6	6.92
Wisconsin	10	6.78

While the state normal schools of the group of states here represented are recognized as among the better schools of their class, it is at once apparent that there is great lack of uniformity with reference to the division of the cost of normal school training between the states and the students in attendance at these schools. If a larger group were considered and a number of the smaller schools included, the lack of any definite policy with reference to the cost of normal school training would be only the more decidedly indicated.

(a) Data from Bureau of Education Bulletin No. 81, 1919.



## SECTION VII

The Distribution of Funds Among the Principal  
Functions of Expense.

The generally accepted classifications of expenditures in support of public elementary and high schools recognizes eight principal functions or types of service for which school funds are commonly expended. The following tabulation taken from the uniform report blank used by the state departments of education in reporting educational statistics to the United States Bureau of Education indicates the important items of expense which are included under each of the eight divisions:

## I. Expenses of general control (overhead charges)

1. school elections
2. board of education and secretary's office
3. finance offices and accounts
4. offices in charge of buildings and supplies
5. legal services
6. operation and maintenance of office buildings
7. superintendents of schools and their offices
8. enforcement of compulsory education, truancy laws, and census enumeration.
9. other expenses of general control.

## II. Expenses of instruction.

1. salaries of supervisors of grades and subjects
2. other expenses of supervisors
3. salaries of principals
4. other expenses of principals' offices
5. other expenses of supervision
6. salaries of teachers
7. text-books
8. supplies used in instruction
9. other expenses of instruction.

## III. Expenses of operation of school plant

1. wages of janitors and other employes
2. fuel
3. water
4. light and power
5. janitors' supplies
6. other expenses of operation

## IV. Expenses of maintenance of school plant

1. repair of buildings and upkeep of grounds
2. repair and replacement of equipment
3. other expenses of maintenance





## V. Expenses of auxiliary agencies &amp; sundry activities

1. libraries
2. books for libraries
3. promotion of health
4. transportation of pupils
5. care of children in institutions
6. provision of lunches
7. community lectures
8. social centers
9. recreation
10. other agencies and activities
11. payments to private schools
12. payments to schools of other civil divisions

## VI. Expenses of fixed charges

1. pensions
2. rent
3. insurance
4. taxes
5. contributions, contingencies, etc.

## VII. Outlays (capital acquisition &amp; construction)

1. land
2. new buildings
3. alteration of old buildings
4. equipment of new buildings and grounds, exclusive of replacements

## VIII. Expenses of debt service

1. redemption of bonds
2. payments to sinking funds
3. redemption of short term loans
4. payments of interest on indebtedness
5. refunds (tax and tuition)

Expenditures for the items comprised in the first six of these groups constitute the current or relatively constant expenses of the schools, as distinguished from capital outlays and the expenses of debt service which ordinarily result from the comparatively infrequent and irregular necessity of enlarging the school plant or adding to its equipment. Of the items included under expenses of debt service, interest on indebtedness alone represents an actual charge against the accounts of the school systems, the amounts of the payments to sinking funds and for redemption of bonds or other loans having previously been reported as expenditures, largely under the heading of capital outlays. The item of interest, however, is an actual cost over and above the expenditures for which the indebtedness was incurred. It is for this reason frequently classified with other items of current operating expense, the total actual expenditures being grouped under the two classes of current expenses and outlays.

According to the report of the Bureau of Education (a) for 1920, the total payments for capital outlays for public schools in 1920 amounted to \$153,542,852. The payments for current operating expenses including interest on indebtedness were \$882,608,357. The expenditures for outlays thus amounted to 14.8 per cent of the total cost of schools for that year. In 1918 the percentage of total expenditures in support of elementary and high

(a) Statistics of state school systems, 1919-20 (in press).

# THE HISTORY OF THE UNITED STATES

1. The first settlement in the United States was made by the Pilgrims in 1620.
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schools which was classified as outlay was 15.5. According to Burgess (a) expenditures for outlays have absorbed annually from approximately 16 per cent to 19 per cent of all school funds since 1890.

TABLE XV. Distribution of expenditures of state school systems for current expenses, 1920.

<u>function</u>	<u>amount in millions of dollars</u>
general control	36
instruction	636
operation	115
maintenance	30
auxiliary agencies	36
fixed charges	9
interest	21
total	883

The distribution of the current expenses of state school systems in 1920 is shown in Table XV. The percentage of the total current expenses which was devoted to each of the principal classes of expenditures is shown for both 1920 and 1918 in Table XVI. The percentages for the same items when the expenditures for capital outlay are included are shown for the two years in Table XVII.

TABLE XVI - Percentage distribution of current expenses of state school systems, 1918 & 1920.

<u>function</u>	<u>percentage</u>	
	<u>1918</u>	<u>1920</u>
general control	3.9	4.1
instruction	69.0	72.0
operation	17.3	13.1
maintenance	3.2	3.4
auxiliary agencies	3.3	4.1
fixed charges	.9	1.0
interest	2.3	2.3

From Table XVI it appears that about 70 per cent of the funds available for meeting the current expenses of the schools is required for items included under the head of instruction. The general expenses involved in the administration of schools from year to year absorb about 30 per cent of all funds exclusive of capital outlays.

(a) W. Randolph Burgess. Trends of School Costs. New York: Russell Sage Foundation, 1920. P. 105.

schools which are classified as primary and secondary schools. (a) expenditures for salaries were reported amounting to approximately 10 per cent of the total expenditures in 1930.

TABLE IV. Distribution of expenditures of State school systems for current purposes, 1930.

Function	Percentage
Salaries	35.0
Instruction	25.0
Administration	15.0
Plant and equipment	10.0
Library	5.0
Interest	2.0
Total	100.0

The distribution of the current expenditures of State school systems in 1930 is shown in Table IV. The percentage of the total current expenditures which are devoted to each of the principal divisions of expenditures is shown in Table IV. The percentages for the same items when the expenditures for capital outlay are included are shown for the same items in Table V.

TABLE V. Percentage distribution of current purposes of State school systems, 1930 & 1931.

Function	Percentage	Percentage
Salaries	35.0	35.0
Instruction	25.0	25.0
Administration	15.0	15.0
Plant and equipment	10.0	10.0
Library	5.0	5.0
Interest	2.0	2.0
Total	100.0	100.0

From Table V it appears that about 35 per cent of the total expenditures are devoted to the salaries of the teachers and about 25 per cent to the instruction. The percentages for the other items are shown in Table V. The percentages for the same items when the expenditures for capital outlay are included are shown in Table V.



TABLE XVII. Percentage distribution of total expenditures of state school systems, 1918 and 1920.

function	percentage	
	1918	1920
general control	3.3	3.5
instruction	58.2	61.3
operation	14.7	11.1
maintenance	2.7	2.9
auxiliary agencies	2.8	3.5
fixed charges	.8	.9
interest	2.0	2.0
capital outlay	15.5	14.8

When the total expenditures are considered, approximately 60 per cent of all funds are required for the expenses of instruction and about 15 per cent for capital outlays. According to data contained in the report of the state superintendent of public instruction in Illinois, these percentages for this state in 1920 were 60.3 and 14.9, respectively. The increase shown in Tables XVI and XVII in the percentage of expenditures for instruction in 1920 over that for 1918 is due principally to the general increase in teachers' salaries during that period.

The reports for state school systems include both city and rural schools and the percentages shown in the above tables indicate the tendency when the expenses of all schools are taken together. When city school systems alone are considered and the cities are classified according to size there is seen to be a difference in the proportionate part of school expenses devoted to instruction. Table XVIII shows the percentage distribution of current expenses for 225 cities in 1918. These cities include five population groups of 45 cities each. Group I includes cities of over 10,000 inhabitants. Group II cities of from 30,000 to 100,000, group III those from 10,000 to 30,000, group IV those from 5,000 to 10,000 and group V those between 2,500 and 5,000.

While the expenses of city school systems increased greatly in the period from 1910 to 1920, the division of funds between the costs of instruction and other current expenses for schools has remained relatively constant. A study (a) based upon data assembled by agents of the Bureau of Census in 1910 and relating to school expenditures in 1909 shows that in 103 cities of 30,000 and more inhabitants 74.5 per cent of the current expenses of schools was used to defray the costs of instruction. A study (b) recently reported and based upon reports from 375 cities of more than 8000 inhabitants for 1920 shows that 74.3 per cent of the current expenses of these school systems went for instruction.

- (a) Harlan Updegroff, A Study of Expenses of City School Systems, Bureau of Education Bulletin No. 5, 1912.  
 (b) Know and Help Your Schools. Third Report. New York: American City Bureau, 1921. P. 25.



FIG. 10. Percentage of total expenditures for  
common schools devoted to instruction and outlays,  
1918 & 1920.

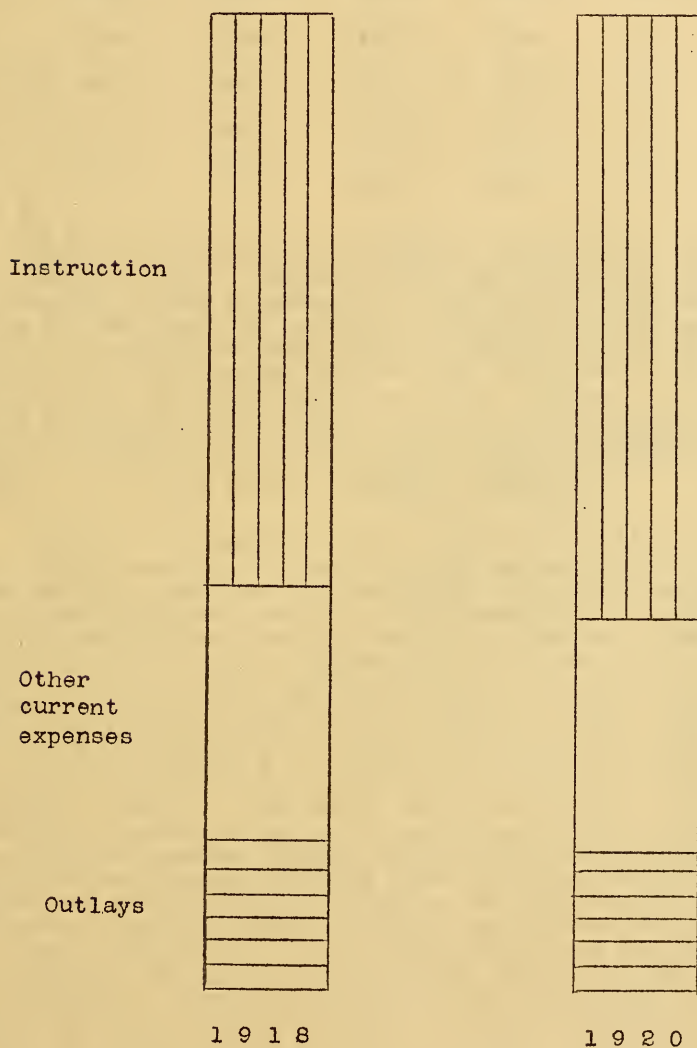


FIG. 10. Percentage of total expenditures for common schools devoted to instruction and outlay, 1918-19.

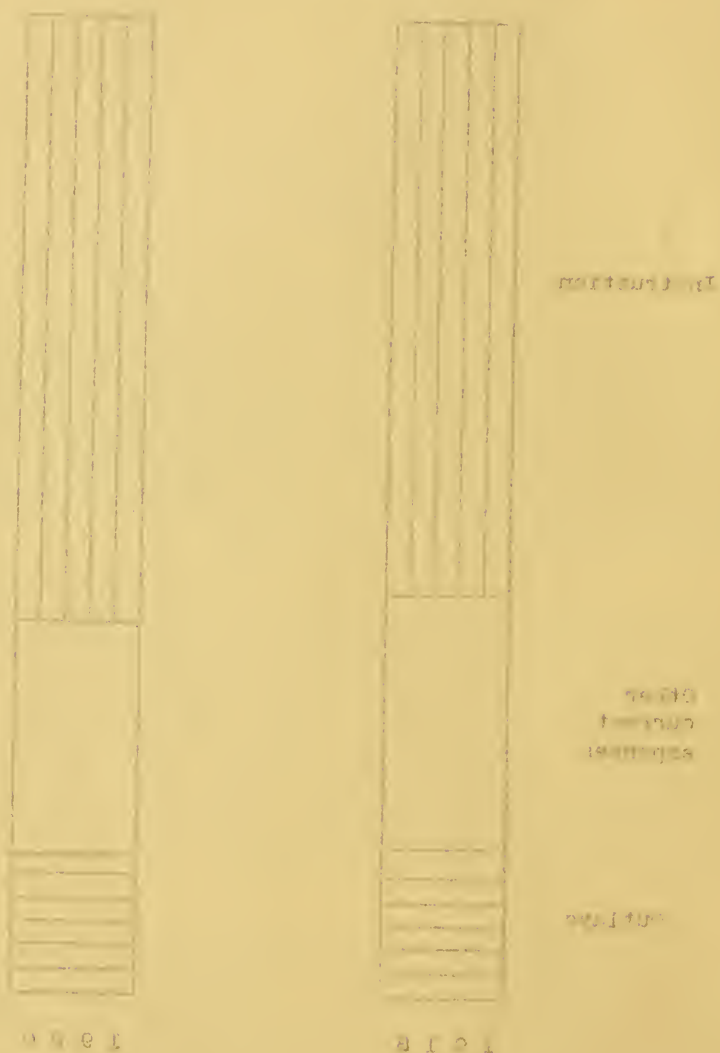




TABLE XVIII. Percentage distribution of current school expenses of 225 cities grouped according to size, 1918. (a)

Group	gen'l con- trol	instr- unct- ion-	oper- ation	maint- enance.	auxil. agencies	fixed charges & int.
Group I	-4.0	75.0	10.6	4.1	2.0	4.3
Group II	-3.3	69.2	12.9	5.2	1.6	7.8
Group III	-4.5	69.7	13.0	4.4	1.3	7.1
Group IV	-5.2	65.9	13.7	4.4	2.0	8.8
Group V	-6.8	65.5	14.1	3.6	2.0	8.0

Where it is possible to separate high school and elementary school expenditures it is found that the proportion of total costs devoted to the expenses of instruction is approximately the same in the two types of schools. Detailed reports concerning nine state systems for 1918 show that 62.9 per cent of all elementary school costs were incurred for instruction, while this percentage for the high schools was 61.7. There is, however, a greater difference in the proportionate amounts spent for outlays. Computations based on the same reports show an expenditure for outlays of 17.1 per cent of all high school funds and only 11.2 per cent in the case of the elementary schools.

Reports of expenditures for higher educational institutions do not follow exactly the same classification as that adopted for common schools. Besides the fact that the activities of the institutions are different, the funds of higher institutions are derived from different sources and the accounting for any given institution is adapted to the type of school and its sources of income. One result of this fact is a greater variety of accounting systems and a general lack of uniformity in the type of report that is made. The central agencies which collect statistics of higher schools report fiscal statistics for these institutions in terms of income received rather than in the form of classified expenditures. The reports issued by the Bureau of Education make some analysis of the state appropriations for higher education, indicating separately the amounts allotted for current expenses and for outlays. Thus the report for 1921 shows that the income of all state colleges and universities amounted to 98 million dollars. The legislative appropriations for buildings and new equipment amounted to nine millions, or a little more than nine per cent of the total income. In 1920 the legislative appropriations for buildings amounted to about eight per cent of the income of the institutions reporting. This, however, can not be taken as an exact estimate of the division of funds for these institutions between current expense and capital outlays because considerable sums are frequently received from private benefactions for building purposes, and other income may be so employed.

Reports for individual institutions of course specify the amount expended for capital acquisition and construction, usually for a one-year or a two-year period. In considering a single institution, however, it must be understood that the requirements of the institution in the way of new buildings and equipment for

(a) Computed from data presented in Bureau of Education Bulletin No. 24, 1920.



a given year or biennium may not be representative of such requirements from year to year. The division of expenditures between capital and other accounts over a period of years is obviously the most significant measure of the relation of outlays to current expenses. Detailed reports of this type which represent a uniform accounting over a period of years are not readily obtainable. Such data for the University of Illinois are included in the report of the comptroller for the year ending June 30, 1920. According to this report the percentage of total expenditures devoted to capital outlays for the seven-year period ending June 30, 1920 was 15.1. The percentage devoted to outlays in any one year varied from 26.4 in 1914 to 8.7 in 1920.

Detailed reports concerning expenditures for state higher institutions are to be found in some of the surveys of these institutions. The classifications employed in the Iowa (a) and Washington (b) surveys indicate rather clearly the principal types of expenditures in the institutions considered. Each of these states maintains a university and an agricultural and mechanical college under state control. Including with salaries the reported expenditures for educational supplies and equipment other than that charged to outlay accounts, this total is taken as the cost of instruction proper. Since executive officers of higher institutions are generally not regarded as supervisors of instruction, their salaries are reported as expenses of overhead. Costs of maintenance and operation are likewise classed as overhead, the expenditures being distributed among the three functions of outlays, instruction, and overhead.

TABLE XIX. Percentage distribution of expenditures for state higher institutions in Iowa and Washington.

<u>function</u>	<u>Universities</u>		<u>A &amp; M Colleges</u>	
	<u>Iowa</u>	<u>Wash.</u>	<u>Iowa</u>	<u>Wash.</u>
outlays	23.0	22.2	30.0	38.1
instruction	48.4	56.5	45.3	41.6
other expenses	28.5	21.1	24.6	20.2

The reports mentioned include data for the two years of 1914 and 1915 in the case of the Iowa institutions and estimates for 1917-19 for those of Washington. In order to more evenly distribute the cost of buildings and new equipment, the average annual expenditures for the periods stated are taken instead of the data for a single year. Table XIX shows the percentage of total expenditures devoted to each of the three functions for the two types of schools separately, these being based upon the average expenditures for two years as stated.

The relation of instruction costs to other costs may be shown as in Table XIX. It is perhaps more significant to note the ratio of the cost of instruction to the total amount of the current expenses. Such ratio probably furnishes the best basis of comparison of the distribution of expenditures in different institutions. However, any such comparisons should be made with caution even between institutions of similar type because of the lack of

- (a) State Higher Educational Institutions of Iowa. Bureau of Education Bulletin No. 19, 1916.
- (b) The Educational Institutions of the State of Washington. Bureau of Education Bulletin. No. 26, 1916.







uniform methods of accounting. In the University of Illinois, according to the 1920 report referred to, the percentage of total current expenses classified as the cost of teaching and research was 57.7. Including the cost of certain special investigations which constitute the rather regular research activities, - the agricultural and engineering experiment stations, the Bureau of Educational Research, etc. - this percentage becomes 69.8. In 1914 the corresponding percentages were 63.8 and 78.7, respectively. The report of the Survey of the University of Arizona (a) presents a comparable classification of expenditures of that institution for 1915 and 1916. The percentage of total current expenses represented by instruction costs was 47.4 in 1915 and 43.9 in 1916. A survey just completed of the higher institutions of Kansas shows that the cost of instruction and research in the state university was 40.0 per cent of all current expenses in 1921. In the agricultural and mechanical college 54.3 per cent of the current expenses went for instruction and research (b). A recent report of expenditures by the University of Washington (c) shows that 44.71 per cent of the current expenses in 1921 was classified as instruction costs.

The data presented with reference to instruction indicate considerable variation in the proportionate amount of available funds devoted to instruction and research as compared with other current expenses even where comparable records exist. Such variation is to be expected from the fact that the activities of the different institutions are by no means uniform. Moreover, those activities which are common to all the institutions for which reports are given are variously emphasized.

To distinguish the costs of instruction in classical subjects from the costs of technical instruction for any given higher institution requires an analysis of all items of current expense and more detailed records than are usually compiled for general distribution. Such details of expenditures are included in the report of the survey of the Washington institutions. Forty-two separate courses are reported on as to salary costs of instruction. If these are grouped so as to include all courses which are primarily vocational under one class, it is found that the salary costs of instruction in the two higher state institutions for these courses is 44.5 per cent of these costs for all instruction. This is based upon a two years' budget, and probably represents as accurate distribution as can be made of such costs in higher institutions. The Iowa study does not give similar data for the A. & M. College, but shows approximately the same division for the two types of courses in the university as was shown for Washington, the data for 1915 showing 45 per cent of the salary costs of instruction as being charged to the vocational group. In 1914 this percentage was 44.7. A similar analysis of instruction costs in the University of Washington in the 1921 report referred to shows that 53.5 per cent of the salary costs of instruction was expended for courses in liberal arts and science groups. On the basis of these reports, it appears that about 55 per cent of the salaries of instructors in higher schools are at present absorbed in teaching the academic or classical courses.

- (a) Bureau of Education Bulletin No. 19, 1917. P. 162.
- (b) Data from manuscript of report of Survey made under the direction of the Bureau of Education.
- (c) The Third Biennial Report of the Joint Board of Higher Curricula. Seattle: The Joint Board of Higher Curricula, Edwin B. Stevens, Secretary, 1922. P. 31.

the first of these is the fact that the system is not self-sufficient. It is necessary to import a large quantity of raw materials and to export a large quantity of finished goods. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not self-sufficient means that it is dependent on the rest of the world for its raw materials and for its markets. This makes it vulnerable to changes in the world economy, but it also means that it can benefit from changes in the world economy.

The second of the disadvantages of the system is the fact that it is not very flexible. It is a rigid system, and it is not able to adapt to changes in the world economy. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not very flexible means that it is able to maintain a high level of production and a high level of employment. This makes it a source of strength for the country, but it also means that it is not able to adapt to changes in the world economy.

The third of the disadvantages of the system is the fact that it is not very efficient. It is a wasteful system, and it is not able to produce goods and services at a low cost. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not very efficient means that it is able to maintain a high level of production and a high level of employment. This makes it a source of strength for the country, but it also means that it is not able to produce goods and services at a low cost.

The fourth of the disadvantages of the system is the fact that it is not very fair. It is a system that is based on the principle of the few for the many, and it is not able to provide for the needs of all the people. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not very fair means that it is able to maintain a high level of production and a high level of employment. This makes it a source of strength for the country, but it also means that it is not able to provide for the needs of all the people.

The fifth of the disadvantages of the system is the fact that it is not very healthy. It is a system that is based on the principle of the few for the many, and it is not able to provide for the needs of all the people. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not very healthy means that it is able to maintain a high level of production and a high level of employment. This makes it a source of strength for the country, but it also means that it is not able to provide for the needs of all the people.

The sixth of the disadvantages of the system is the fact that it is not very stable. It is a system that is based on the principle of the few for the many, and it is not able to provide for the needs of all the people. This is a disadvantage of the system, but it is also a source of strength. The fact that the system is not very stable means that it is able to maintain a high level of production and a high level of employment. This makes it a source of strength for the country, but it also means that it is not able to provide for the needs of all the people.

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The salary costs probably do not indicate exactly the difference in the costs of the two types of training, as the materials of instruction and the equipment used in teaching is much more expensive for some courses than for others. But since the salary costs amount to from two-thirds to three-fourths of the total cost of most departments, the actual expenses of the group of departments included in the vocational group would likely bear approximately the same ratio to the total costs if it were possible to determine the total costs of the various departments precisely.







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